GUIDELINES FOR DESIGNING PROGRAMS FOR RAISING RENTS AND IMPLEMENTING HOUSING ALLOWANCES IN RUSSIAN REPUBLICS AND MUNICIPALITIES

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ABSTRACT

The objective of this paper is to outline the choices that cities will face when reforming the housing sector at the local level. This paper reports the effects of six alternative rent increase-housing allowance strategies. It describes how each would develop under two possible scenarios of income growth relative to inflation, i.e., the extent to which incomes keep up with price increases during the implementation period.

The simulations of the programs are based on real 1992 data from three Russian cities: Moscow, Novosibirsk and Ufa. These data enable the estimation of the impacts of housing allowance programs on actual cities and households in the Russian Federation. This material should serve as a guide to local government officials responsible for formulating housing policy and those involved in the design and implementation of the rent increase and housing allowances program.

The central conclusion of this analysis is that there are important differences among the housing sectors of cities of the Russian Federation. Consequently, any simple national directive on the implementation of the rent increase-housing allowance program should be avoided. Rather each city should examine its own situation and devise its own program strategy.

EXECUTIVE SUMMARY

Implementation of the provisions of the Law on Fundamentals of Housing Policy in the Russian Federation will bring about far reaching reforms in the state rental sector. This legislation requires that charges to tenants for maintenance and communal services be increased to cover costs fully within five years. However, the law also includes provisions for the implementation of programs at the local level to protect low income households from burdensome housing payments. Housing allowance programs—programs which provide payments to low-income households to be used to help pay for rents—implemented concurrently with rent increases will enable local governments to assist low-income households while reducing subsidies in the housing sector.

This paper addresses questions likely to be asked by local officials charged with designing the rent increase-housing allowance program. How quickly should revenues to the city reach full cost? What population should be covered by a housing allowance program? What is a reasonable contribution as a percent of income to be expected of a household? How do program parameters affect participation rates, targeting of subsidies to the poor and net revenues to the city?

Recent discussion at the Federation level has resulted in a proposal of a national directive dictating the parameters of the program. However, the current situations in terms of income distribution, housing stock and operating costs of providing maintenance and communal services vary widely across cities. Thus, the effects of a program differ from city to city and a rent increase-housing allowance program suitable for one city may not be advisable in another city. For example, if the housing stock of a city suffers from deferred maintenance and requires extensive capital rehabilitation, officials may chose a program which generates more net revenue for the city in the first years. On the other hand, if there is a larger share of low income households in the city, officials may chose to defer increases in tenant contribution in order to allow a more gradual transition to full cost charges to tenants.

In short, careful analysis of current situation in a city is essential in order to prevent the negative effects of an ill-suited policy. Most importantly, thoughtful discussion, based on hard analysis, must take place among the policymakers formulating the program in order to determine the parameters best suited to their own city.

The effects of six alternative rent increase-housing allowance strategies are presented here for three Russian cities: Moscow, Novosibirsk and Ufa. Simulations of the programs enable us to estimate the impacts of housing allowance programs on actual cities and households in the Russian Federation and to demonstrate how the effects of a program can differ across cities. This material should serve as a guide to local government officials responsible for formulating housing policy and those involved in the design and implementation of the rent increase and housing allowances program.

The central conclusion of this analysis is that there are important differences among the housing sectors of cities of the Russian Federation. Consequently, any simple national directive on the implementation of the rent increase-housing allowance program should be avoided. Rather each city should examine its own situation and devise its own program strategy.

GUIDELINES FOR DESIGNING PROGRAMS FOR RAISING RENTS AND IMPLEMENTING HOUSING ALLOWANCES IN RUSSIAN REPUBLICS AND MUNICIPALITIES

1. INTRODUCTION

The Law on Fundamentals of Housing Policy in the Russian Federation was passed by the Supreme Soviet in December 1992. Implementation of the provisions of this landmark law will restructure the housing sector in the Russian Federation. The most far reaching restructuring will occur in the State rental sector. The law requires that charges to tenants for maintenance and communal services be increased to cover costs fully within five years. However, the law also recognizes that some families will not be able to afford to pay these costs, and for this reason it permits the governments of the republics, krais, oblasts, and autonomous municipalities to establish housing allowance programs—programs which provide payments to low income households to be used to help pay for rents.

In this period of transition, households are unsure about the future of the housing sector and their own situation. The prospect of future rent increases instills anxiety in households who need to be reassured that they will not be made to undertake an unreasonable financial burden. The housing allowance provision in the new law enables local governments to implement a program that will guard against just that. In order to alleviate this fear of the unknown, schedules of rent increases and housing allowance programs should be announced from the outset.

The objective of this paper is to outline the choices that cities will face when reforming the housing sector. Housing allowance programs implemented concurrently with rent increases will enable local governments to protect low-income households while reducing subsidies in the housing sector. A rent increase/housing allowance program can proceed along several different tracks depending on the strategy chosen by local officials to be the most appropriate to their housing situation. These strategies vary: (1) the speed at which the city moves to charging full cost of maintenance and communal services; and (2) the contribution, as a percent of household income, that tenants are expected to pay for these services.

Both financial and political impacts of the alternative rent increase-housing allowance programs must be taken into account. A city in which the municipal and departmental housing stock is in need of considerable capital rehabilitation or suffers from extensive deferred maintenance may consider maximizing its net revenue, i.e., household payments net of housing allowance payments, in the first years of the program in order to cover some of these expenses and improve the housing stock. This strategy, however, could place a larger burden on the tenants than politically feasible. In this case rents and net revenues could be increased at a more steady pace to allow more time for adjustment in the transitional period and to place a lower burden on renters.

This paper reports the effects of six alternative rent increase/housing allowance strategies. It describes how each would develop under two possible scenarios of income growth relative to inflation, i.e., the extent to which incomes keep up with price increases during the implementation period. The simulations are based on real 1992 data from three Russian cities: Moscow, Novosibirsk and Ufa. These data enable us to estimate the impacts of housing allowance programs on actual cities and households in the Russian Federation. This material should serve as a guide to local government officials responsible

for formulating housing policy and those involved in the design and implementation of the rent increase and housing allowances program.[1]

The central conclusion of this analysis is that there are important differences among the housing sectors of cities of the Russian Federation. Consequently, any simple national directive on the implementation of the rent increase-housing allowance program should be avoided. Rather, each city should examine its own situation and devise its own program strategy.

The following section describes the concept and key parameters of the housing allowance. This section also includes some of the options for determining the definitions and specifications for each of these key parameters. The following section illustrates how the objectives of the local government are reflected in the design of the program and describes the rent increase-housing allowance program strategies presented in this guide. Section 4 provides some relevant background information on housing stock and household income and expenditures in the three cities. Section 5 deals with understanding the outcome of the simulations for the first year of the program and how the results differ across cities. In the final two sections, full program implementation is discussed and the conclusions from this report summarized.

2. WHAT IS A HOUSING ALLOWANCE?

A housing allowance is a subsidy for maintenance and communal services fees paid to a household or on behalf of a household to owners of the housing and providers of communal services. A housing allowance protects a household for whom meeting the charges for rent and communal services would be a financial hardship. The allowance pays the difference between typical housing costs in the city for a household of that size and the household's expected contribution as determined by policy-makers. The household contribution is the percentage of income a family is expected to be able to pay for housing. Thus, the key feature of the housing allowance is that the subsidy depends on the household's income: the lower the household's income, the larger that household's subsidy and the smaller the amount of the full costs of housing the family must pay out of its pocket.

Housing allowances are very useful in a situation in which housing costs are increasing rapidly. For example, in Russia and other countries moving to market relationships in the housing sector, housing allowances will make it possible to raise rents to a level that reflects the current market prices of maintaining housing and providing communal services, while continuing to assist low income households. Housing allowances are used in nearly all industrialized countries; in Eastern Europe they have been adopted in East Germany, Hungary, and Estonia.

For additional material on housing allowances see Shelter Sector Reform Project reports "Options for Administering Housing Allowances in Russia" by Jill Khadduri and "Implementing Housing Allowances in Russia: Rationalizing the Rental Sector" by Ray Struyk et al.

A household participating in the program is free to chose any housing unit. Allowances are assigned to a household, not to a particular dwelling. This aspect of the program serves to shift the operation of the rental sector to a market basis and to integrate the state rental sector with the private rental sector. Integration will create competition in the rental sector, inducing landlords to improve housing quality in order to attract renters. Over time, housing allowances will help to eliminate the distinction between municipal and private housing. As renters or as homeowners, families will pay housing costs determined by the market, so that housing can be provided on an efficient, competitive basis. At the same time, households who cannot afford market rents or homeownership costs will be protected.

The housing allowance model employs a formula for computing payments of the "housing gap" type. Subsidy payments are designed to fill the gap between what a household can reasonably pay and the cost of an adequate unit. The monthly allowance payment (***A***) is computed as

$$A = MSR - tY \quad (1)$$

where ***MSR*** is the "maximum social rent"; that is, the cost of a suitable housing unit in the market. ***Y*** is household income and ***t*** is the household contribution.

MSR is determined according to a social norm of housing based on the size or characteristics of a household. A space allowance is set per household and multiplied by the new maintenance fees and communal services charges per square meter of housing.

$$MSR = Space\ Allowance * (Cost/m^2) \quad (2)$$

The space allowances may be established according to family composition, taking into account age, sex, and family relationships of household members. The simulations reported here, however, employ a very simple space allowance schedule based wholly on number of persons in the household.[2]

The ***MSR*** can be defined to include maintenance fees only or both maintenance fees and payments for communal services. The argument for subsidizing utilities is that currently services are so highly subsidized that it would be difficult for low-income renters to pay for them as they are increased over time. However, equity between renters and homeowners is jeopardized if renters qualify for this assistance while homeowners are excluded. The composition of the tenure of the housing stock should determine the definition of ***MSR***. In Moscow, such a small percentage of the housing stock is individual housing that this issue is not really germane. However, in other cities, such as Novosibirsk where about 6 percent of the stock is individually-owned housing units, equity becomes a relevant issue. Additionally, the cost per square meter of housing in the ***MSR*** may vary across cities but not within a city.

In equation (1) above, ***t*** is the share of income a household can reasonably be expected to spend on housing. Currently, households renting in Moscow are spending, on average, less than one percent of

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See Appendix A for details of the social norms for space employed in the calculation of ***MSR***.

their income on maintenance fees and 2 percent on maintenance plus utilities. In comparison, household expenditure on housing, including maintenance, utilities and capital cost, in other industrialized countries usually constitutes 15 to 30 percent of income.

t is the household contribution if their unit is exactly at the ***MSR***. Since few families live in units that are exactly the same size as the social norm, families rarely will pay exactly the percentage of income chosen for ***t***. If a household is "overhoused", i.e., living in a larger flat than its space allowance, their housing payment will be higher than ***t***. An "underhoused" household will pay less. The actual household payment is the difference of housing expenses, maintenance fees plus charges for communal services, minus the allowance.

$$\textit{Payment} = \textit{Housing Expenses} - \textit{Housing Allowance} \qquad (3)$$

According to the formula, an "underhoused" family with a low income could receive more than their monthly housing expenses. However, the model employed in these program simulations caps the housing subsidy at the household's actual housing expenses.

Table 2.1
Housing Allowance Formulas

Gross rent[3]	=	(actual square meters) * (charge per square meter for maintenance only or maintenance and communal services)
MSR	=	(social norm, m^2) * (charge per square meter for rent or maintenance and communal services)
Housing allowance	=	MSR - (t * household income)
Net payment	=	Gross rent - Housing allowance

In equation (1), ***Y*** is the household's monthly income from all sources. Allowance payments equal the ***MSR*** when the household has no income and allowances decline as income rises. This phasing out of allowances (***A*** = 0 at ***Y*** = ***MSR/t***) is an improvement over a system of housing allowances in which a household receives all or none of the subsidy depending on whether their income is above or below the

[3] Gross rent refers to a household's housing expenses before the housing allowance. This is a slightly simplified formula for both gross rent and MSR and is the formula that has been used for estimating the effects of various housing allowance options. The actual gross rent is calculated according to formulas for maintenance fees and charges for communal services in each of the three cities. See Appendix A for details.

income cutoff. Furthermore, the sliding scale of allowances is much more equitable than offering public housing to all household with no consideration of their income.

Table 2.1 summarizes the formulas for calculating housing allowance payments.

Table 2.2 demonstrates the calculations of housing allowances and rent payments for four sample cases. Noting that the ***MSR*** is set for the size unit that the household is considered to need, not for the size of units in which the family is actually living, these cases illustrate how actual rent payments may differ from ***t***, tenant contribution as a percentage of income.

Table 2.2
Overhoused and Underhoused Families

Case 1

If the family lives in a unit that has ***exactly*** the number of square meters in the social norm, the net rent paid by the family will be equal to the percentage of income established by "t."

Income (Y)		rub. 2,000/month
t		5 percent
Rent and communal services (per m^2)		rub. 5/month
Social norm for family		50 square meters
Family's actual unit		50 square meters
MSR (5 * 50)		rub. 250
Gross rent (5 * 50)		rub. 250
Housing allowance (250 - (0.05 * 2,000))	rub. 150	
Net rent (250 - 150)		rub. 100
Net rent/Y (100/2,000)	5 percent	

Case 2

If the family lives in a larger unit than the social norm, it will pay more than "t".

Family's actual unit		60 square meters
MSR		rub. 250
Gross rent (5 * 60)		rub. 300
Housing allowance (250 - (0.05 * 2,000))	rub. 150	
Net rent (300 - 150)		rub. 150
Net rent/Y (150/2,000)	7.5 percent	

Case 3

If the family lives in a unit smaller than the social norm, it will pay less than "t."

Family's actual unit		40 square meters
MSR		rub. 250
Gross rent (5 * 40)		rub. 200
Housing allowance (250 - (0.05 * 2000))	rub. 150	
Net rent (200 - 150)		rub. 50
Net rent/Y (50/2,000)		2.5 percent

Table 2.2
Overhoused and Underhoused Families

3. ALTERNATIVE STRATEGIES

What population should be covered by a housing allowance program? Housing allowances can apply to families living in any type of housing and to owners as well as renters. Local governments must make decisions about what forms of tenure to include in a housing allowance program. The types of housing to be considered for coverage under a housing allowance program are shown in Table 3.1.

Table 3.1
Types of Housing to be Considered
for Coverage Under a Housing Allowance Program

Municipal rental units

Departmental rental units

Units in cooperative buildings
(whether or not the loan has been paid off)

Privatized units in municipal or departmental housing
(occupied by the family who initially privatized)

Condominium units
(occupied by the family who initially privatized the unit from the municipality or department)

Privatized units
(occupied by those renting from privatizers)

Individual houses and privately owned units

Other privately owned units or houses
(occupied by owners who purchase at market prices or otherwise acquire the unit aside from privatization)

In Moscow, the proposed housing allowance system includes all forms of ownership, except secondary owners of privatized units, owners of new units sold at market prices, and owners of individual houses. Families who can afford to buy housing at market prices are assumed not to need a housing allowance to help them pay housing expenses. Housing allowances will also not be available to illegal subtenants of municipal or departmental housing; i.e., to families living in units that continue to be registered in the name of a different family. To exclude privatized units and condominiums would likely

slow the pace of privatization, and the Law on Fundamentals explicitly makes those who privatized their unit eligible for allowances.

Clearly to provide housing allowances to anyone not currently subsidized will reduce net revenue. However, as communal services are currently subsidized for all households, this additional cost only applies to the portion of housing payments covering maintenance. In areas where there is a larger population of individually-owned units, owners may not be able to afford ownership; i.e., the cost of maintenance of the unit, or the increases to communal services fees. In the short run, selling the house and moving to a rental unit may not be an option. Additionally, if communal services are included in the ***MSR***, equity between renters and homeowner is compromised if renters are eligible for housing allowances and homeowners are not.

In many countries which have housing allowance programs, the housing allowance may only be paid on behalf of a family who lives in a unit that is considered to be of adequate quality. Families who live in units that do not pass such a housing quality test must either arrange to have their unit repaired or must move to a better housing unit.

Such a housing quality standard has many advantages. For example, it helps persuade managers of apartment buildings to keep those buildings in good condition, because otherwise families would move elsewhere to protect their eligibility for housing allowances. However, given the present situation of housing shortage in the Russian Federation, it is not possible or advisable to implement a program with such a quality standard. And the Law on Fundamentals wisely does not make this a provision of the housing allowance program.

The effects of six alternative strategies are presented in this study. These strategies vary: (1) the speed at which the city moves to charging full cost of maintenance and communal services; and (2) the contribution, as a percent of household income, that tenants who will receive a housing allowance are expected to pay for these services. The speed of moving to full cost is determined by cost coverage, or the increases in maintenance fees and communal services charges. Tenant contribution as a percent of income is used to compute the size of the allowance to which the household is entitled.

Clearly, as cost coverage increases towards full cost, gross revenue increases. However, the objective of a program to raise rents and implement housing allowances is not merely to increase revenues to meet the full cost of housing, but to protect low income families as well. Within the housing allowance program, greater increases in cost coverage do not necessarily mean greater increases in net revenue to the city budget. These revenues could be simply channeled back to the tenants in the form of their allowance payment. Therefore, some trade-off between movement to full cost and assisting the poor must be made.

Since the percent of income a tenant is expected to pay directly affects their eligibility for a housing allowance, net revenue is dependent on tenant contribution, or ***t***. As ***t*** increases, the size of allowance to which a household is entitled decreases, and eligibility for allowances is reduced, i.e., the maximum income a household can have (and still receive a subsidy) falls. Thus, the value set for ***t*** determines how

much revenue is left after allowance payments are made. Higher values of ***t*** generate increased net revenue, as tenants pay a larger share of their full housing expenses.

If during the transition period cost coverage increases rapidly and ***t*** increases slowly, participation will be high and net revenue will be low; and conversely, if cost coverage increases slowly and ***t*** increases rapidly, participation will be low and net revenues will be high. These are the decisions which must be addressed by a city's policymakers.

As previously mentioned, cities in which the municipal and departmental housing stock suffers from deferred maintenance or requires extensive capital rehabilitation may opt for a program which provides a larger increase in net revenue from the outset to cover some of these costs. In this case, both cost coverage and tenant contributions could be increased rapidly.

On the other hand, to allow more time for development of the administration of the program, a more gradual transition may be preferable. By deferring cost increases at the inception and setting a steady or rapid pace for increases in tenant contribution, a city could limit participation and test the procedures for administering the program. A larger city which may require a fairly extensive network of housing allowance offices may opt for this strategy.

Furthermore, the argument for allowing more time for families to adjust psychologically to the idea of increased maintenance fees and communal services charges may, in fact, be reasonable. Families are so used to paying nominal fees for housing that the concept of paying the full value of services may be difficult to accept.

The strategies presented here are as follows:

Strategy 1: Deferred cost coverage increase and deferred increases in tenant contribution (deferred-deferred)

Strategy 2: Deferred cost coverage increase and rapid increase in tenant contribution (deferred-rapid)

Strategy 3: Steady cost coverage increase and deferred increase in tenant contribution (steady-deferred)

Strategy 4: Steady cost coverage increase and rapid increase in tenant contribution (steady-rapid)

Strategy 5: Rapid cost coverage increase and deferred increase in tenant contribution (rapid-deferred)

Strategy 6: Rapid cost coverage increase and rapid increase in tenant contribution (rapid-rapid)

Options for program parameters employed in each strategy are summarized in the following table.

Table 3.2
Alternative Scenarios of the Housing Allowance Program

Year of Program		1	2	3	4	5
t	Deferred increase	5	10	15	20	25
	Steady increase	10	15	20	25	25
CC	Deferred increase	15	30	45	75	100
	Steady increase	20	40	60	80	100
	Rapid increase	25	45	75	100	100
RY	Optimistic case	80	85	90	95	100
	Pessimistic case	70	75	80	85	90

Notes:

t Tenant contribution as a percent of income, which generates net revenue to the city after allowance payments
CC Cost coverage, percentage of total operating costs covered by gross housing expenses
RY Real income deflator, or total household income as a percentage of overall inflation

Cost coverage refers to the percentage of the full cost of providing maintenance and communal services that is covered by gross revenue, or the average percentage of full cost covered by a household's housing expenses before deduction of housing allowance payments, if any. Currently, for example, households are paying only 3.5 percent of full cost in Moscow and about 1.0 percent of full cost in Novosibirsk. Under the slowest increase in charges to tenants (deferred), increased cost coverage begins with an initial rise to at least 15 percent in the first year. The second and third years increase cost coverage by another 15 percent of full cost each year. The largest increases occur in fourth and fifth years when there are increases from 45 percent of full cost to 75 percent in the fourth year and finally, 100 percent of full cost in the fifth year. "Steady increases" in cost coverage increase gross revenue by 20 percent of full cost each of the five years of the transition. "Rapid" cost coverage increases gross revenue to 25 percent of full cost in the first year and reaches 100 percent of full cost in Year 4 of the transition.

Tenant contribution, or ***t***, is the percentage of household income that is expected to be paid by those families who will receive a subsidy for housing expenses. Households in Moscow spend on average under 2 percent of their income on maintenance and communal services. Under the "deferred tenant contribution increase" option ***t*** is initially set at 5 percent of income and increases by 5 percent of income each year, reaching 25 percent of income in the fifth year. The other option increase ***t*** to 10 percent of income in the first year and reaches 25 percent in the fourth year.

The results of each variant of the program were estimated for two scenarios concerning the extent to which household incomes keep pace with inflation—an optimistic scenario in which income growth starts at 80 percent of inflation and eventually equals inflation in Year 5, and a more pessimistic scenario in which income growth starts at 70 percent and reaches only 90 percent of inflation in Year 5. Even our more optimistic scenario is still fairly negative on a cumulative basis. With income starting at 80 percent and reaching 100 percent of inflation, the cumulative income growth is only 58 percent of inflation over five years. The result of these assumptions are highly conservative estimates of participation and program costs. The outcome of the simulations in which income growth was 80 percent of inflation have been used to evaluate the housing allowance strategies. The results of all strategies under both income growth scenarios are presented in Appendix C.

Each of the strategies analyzed was evaluated according to five indicators:

- ***Net revenue as a percent of gross revenue***—revenue after allowance payments are made to participating households as a percent of revenue from total housing expenses, i.e., rent plus communal services, before allowance payments. This tells the city how much "extra" money it will have available to fund better maintenance or cut subsidies to the sector. If net revenue is negative, it shows the additional funds the city will have to devote to the sector.

- ***Share of total housing allowance payments received by the lowest half of the income distribution***—the percent of the total subsidy to all households that is received by those in the lowest two income quartiles. This shows how well the subsidy payments are targeted to the poor.

- ***Participation rates***—what portion of the population is eligible to receive a housing allowance. This measure tells the city how big an administrative job it will have and whether the program will have broad support from a large share of the population participating. The larger the rate of participation the greater the political support for the program as more people foresee benefits.

- ***Cost coverage***, i.e., gross housing charges to households as a percent of full operating cost—a design parameter that determines how quickly the program reaches full cost of housing expenses.

- ***Payment to income ratios of participants in the lowest income quartile*** (households in the lowest 25 percent of the income distribution)—ratios which show how well the program protects allowance recipients from potentially burdensome housing payments; these ratios are most illustrative when examined together with gross housing expenses to income ratios, examples of which are included in figures in the Section 5.

4. BACKGROUND ON THREE CITIES—MOSCOW, NOVOSIBIRSK, AND UFA

This section introduces the data employed in analyzing the scenarios outlined above and the three cities presented in this analysis. As shown below, the cities differ in important ways in terms of their housing stock, housing costs, and income distribution. Readers can identify which of these cities most closely resembles their own city. The results for this city can be given special attention in reading the following sections.

The Data

Data for the three cities come primarily from the Russian Household Income and Expenditure Survey conducted by local branches of the National Statistics Office of the Russian Federation (Goskomstat). These data are supplemented by data on each city's expenditure on maintenance and communal services and their formulas for computing charges to renters.

The Income and Expenditure Survey's questionnaire includes information on income, expenditures on housing, as well as size and type of dwelling. Since allowances are determined by the interaction of housing expenses, household income, family size, and dwelling space, this survey provides suitable data for simulating the overall effects of a housing allowance program. In order to simulate the actual income distribution for each city, the distribution of households was adjusted to represent the actual distribution of households in two aggregated branches of the economy, industry and others, and the ratio of households composed of non-working pensioners to other types of households. In order to make population estimates of program cost and participation, each household in the sample was weighted to simulate the actual number of households in each type of housing.[4]

The survey for Moscow includes 2,374 households living in municipal, departmental and cooperative housing, which corresponds to a weighted sample of 3,379,097 households. These data were collected in March 1992. For the purpose of these simulations, prices and wages were inflated to October 1992 figures according to estimates for inflation and income growth during the period. Both housing costs and incomes increased by about 90 percent.

Data for Novosibirsk include 576 households living in municipal, departmental, cooperative, and individual housing which corresponds to a weighted sample of 392,381 households. Most of the simulations exclude households living in individual housing, therefore using a smaller sample of 538, or a weighted sample of 357,706 households. These data are from the fourth quarter collected in December 1992. In order to produce comparable estimates of program costs for the three cities, income and expenditure data for Novosibirsk were deflated according to inflation estimates to October 1992 figures[5] since both the data sets for Moscow and Ufa were in October 1992 prices.

See Appendix B for details on weighting the sample.

Inflation was 27 percent in October, 21 percent in November and 23 percent in December. Wage growth was assumed to be 80 percent of inflation. Monthly fees for maintenance and communal services are calculated as the average per month for the fourth quarter.

Data for Ufa include 471 households living in municipal, departmental, cooperative, and individual housing, a weighted sample of 256,443 households. Excluding those living in individually-owned housing, the sample consists of 454 households, or a weighted sample of 240,644 households. Income and expenditure data for Ufa were total figures for the third quarter of 1992 and were converted to monthly figures.[6]

Income, Expenditures, and Housing Stock

These three cities provide an interesting comparison of the effects of the rent increase/housing allowance strategies because of differences in incomes, housing costs, and housing stock. For example, the average household income in Moscow in October was 6,492 rubles; per capita income for the same period was 3,239 rubles.[7] On average, families spent about 2 percent of their income on housing. Housing expenditure, however, varied greatly by income quartile. The lowest income quartile spends 4.2 percent on housing while the highest income quartile spent less than one percent, 0.7 percent.

In comparison, the income distributions in Novosibirsk and Ufa differs slightly from that of Moscow (see Table 4.1). The mean household income in Novosibirsk was 6112 rubles in October 1992; the income per person was 2390 with an average household size of 2.66 persons. Housing expenses as percent of income were, however, somewhat lower as tenant payments are a smaller percent of full cost than in Moscow. On average households pay 2 percent of income for housing expenses, including both maintenance fees and communal services charges. Those households in the lowest quartile pay 3 percent of income, while those in the highest quartile pay only 1 percent.

Table 4.1
Mean Incomes and Housing Cost to Income Ratios

	Moscow	Novosibirsk	Ufa
Mean household income (rubles)	6,492	6,112	10,530
Mean income per person (rubles)	3,239	2,390	3555
Mean housing cost (percent of income)	2.0	2.0	1.0

Source: National Income and Expenditure Survey, 1992

Inflation was 9 percent in July, 6.2 percent in August and 16.9 percent in September and wage growth was assumed to be 80 percent of inflation. Incomes were deflated by the compounded monthly inflation over the period.

It is widely believed that there is underreporting of income in this survey. This, however, does not present a problem in estimating the effects of the program because people will likely continue to underreport when applying for allowances.

In Ufa, monthly household income is 10,530 rubles, greater than that of Moscow and Novosibirsk. Average monthly income per person, however, is only slightly larger than Moscow, at 3,555 rubles, since the average household size of 3.29 is larger than both Moscow and Novosibirsk. Payments for maintenance and communal services are, on average, one percent of income. Housing payments are 2 percent of income for those in the lowest income quartile and less than one percent of income for those in the highest.

The distribution of the housing stock also varies across the three cities. Housing stock in Moscow is primarily state-owned; municipal and departmental housing are 90 percent of the total dwelling space with the remaining 10 percent comprised of cooperative housing. There is virtually no individually-owned housing in Moscow. The vast majority of units are self-contained, 83.4 percent. Only 11.2 percent are communal flats; 1.7 percent are rooms in a corridor-type house; and 3.6 percent are in hostels. There are no barracks in Moscow.

Housing stock in smaller cities differs from that of Moscow in that a larger percentage is individual housing. In Novosibirsk and Ufa about 9 and 6 percent, respectively, are individually-owned housing units. The distribution of ownership of housing in the three cities is shown in Table 4.2.

Table 4.2
Distribution of Ownership of Housing Stock
(as percent of total dwelling units)

	Moscow	Novosibirsk	Ufa
Municipal units	75	46	48
Departmental units	15	36	38
Cooperative units	10	8	8
Individual housing	0	9	6

Source: National Income and Expenditure Survey, 1992

Table 4.3 presents the distribution of types of housing unit in each of the three cities.

Table 4.3
Distribution of Type of Unit
(as percent of total dwelling units)

	Moscow	Novosibirsk	Ufa
Self-contained flat	83.4	85.5	74.0
Communal flat	11.2	5.7	10.0
Rooms in a house	1.7	0.0	0.0
Hostels	3.6	7.9	13.0
Barracks	0.0	0.3	0.4
Private rentals	0.0	0.6	2.5

Source: National Income and Expenditure Survey, 1992

Unit size in total space varies slightly across the three cities (see Table 4.4) with Moscow having a smaller concentration of flats under 40 m^2 due, in part, to the fact that their are fewer hostels and no barracks. Ufa has more hostels and barracks and, consequently, smaller units than the other cities. Mean unit size in total square meters is 40 m^2 in Ufa, 41 m^2 in Novosibirsk and 46 m^2 in Moscow.

Another contrasting feature of the housing sector is the percentage of households "under- and overhoused." For example, in Novosibirsk 36 percent of households are "overhoused," that is, living in more space than allowed according to the social norm for a family of their size established in the definition of ***MSR***. In Moscow, 28 percent of households are "overhoused." In Ufa, on the other hand, as a result of the smaller average unit size and larger average household size, there is a greater share of "underhoused" households than in the other cities. This issue is described in more detail within the context of simulation results in Section 5.

Table 4.4
Size Distribution of the Housing Stock by Total Space
(as percent of total dwelling units)

m^2	Moscow	Novosibirsk	Ufa
< 20	3.0	8.9	9.7
21 - 30	11.2	14.5	16.3
30 - 40	21.3	23.7	21.4
41 - 50	26.5	23.2	26.2
51 - 60	21.2	13.9	10.1
61 - 70	10.2	13.2	10.3
> 70	6.6	2.6	4.1

Source: National Income and Expenditure Survey, 1992

The full operating costs of providing housing maintenance and communal services is also vastly different in the three cities. For example, full cost per square meter in Novosibirsk is more than twice that in Moscow. According to the City of Moscow Department of Engineering, general expenditure for monthly maintenance and communal services in Moscow in October 1992 was 49 rubles per square meter. Households paid only 3.5 percent of these expenditures (0.1 rubles per square meter for maintenance fees and 1.62 rubles per square meter for communal services).

The City of Novosibirsk reported that general expenditure for monthly maintenance and communal services was 115 rubles per square meter in October 1992.[8] Tenants paid 1.36 rubles per square meter according to the City, thus receiving a larger subsidy than households living in Moscow.

Total expenditure in Ufa on maintenance and communal services, according to the city budget, was 78.9 rubles per square meter at the end of the third quarter of 1992. Tenants contributed, on average, 2 rubles per square meter, or 2.5 percent of full cost.[9]

From these data it is clear that the three cities differ significantly from one another. Relative to Moscow and Novosibirsk, Ufa has, on average, smaller housing stock, higher income households, and a large percentage of "underhoused" households. Novosibirsk, on the other hand, has lower incomes, a

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This figure was calculated based on the yearly average of 102.15 rubles/m^2 and monthly inflation estimates for the year.

This figure is the average cost per square meter as computed based on formulas for maintenance and communal services provided by the City of Ufa. No estimate of tenant payment per square meter was available from the City, unlike Moscow and Novosibirsk.

larger percentage of "overhoused" families, and considerably higher operating costs in the housing sector. Current subsidies in Novosibirsk are much higher than in the other two cities. Moscow, by comparison, has lower levels of current subsidies and larger average unit size. These differences facilitate a valuable comparison of the outcomes of the alternative strategies of the rent increase-housing program.

It must be noted that there is some question about the accuracy of the figures on full cost to the city for maintenance and communal services for Ufa and Novosibirsk. However, this does not detract from the conclusions to be drawn from the results of this analysis and the lessons to be learned about the effects of alternative program strategies. Presented here are the results of simulations of rent increase/housing allowance programs in three different cities.

5. THE FIRST YEAR—UNDERSTANDING DIFFERENCES IN OUTCOME

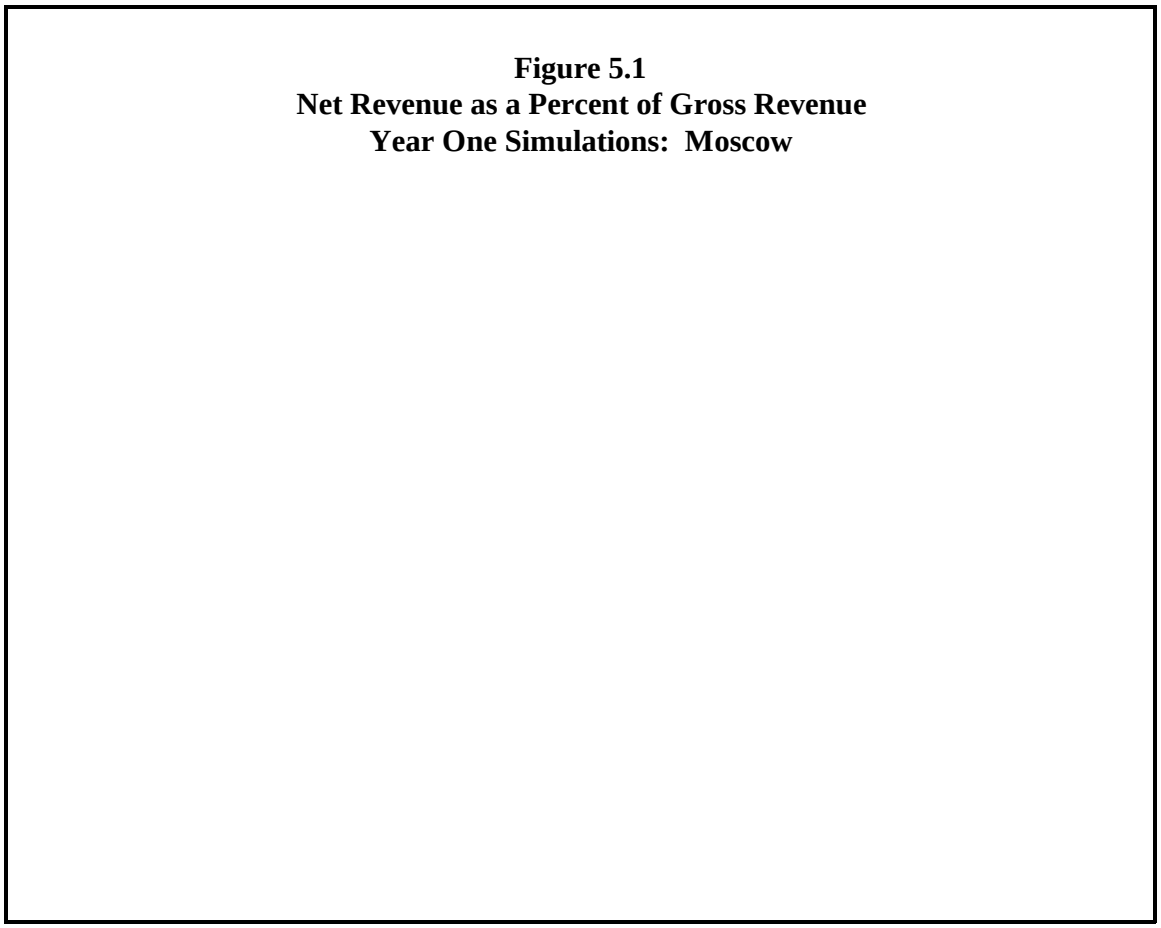
In this section the results of the first year of programs are examined first for Moscow alone and then as a comparison among the three cities.

Moscow

The results of the simulations for Moscow clearly demonstrate that the program of increasing fees for housing services and implementing a program of housing allowances for low income families will pay for itself. Thus, budgetary subsidies for the provision of these services will be greatly reduced and/or expenditures on maintenance can be increased.

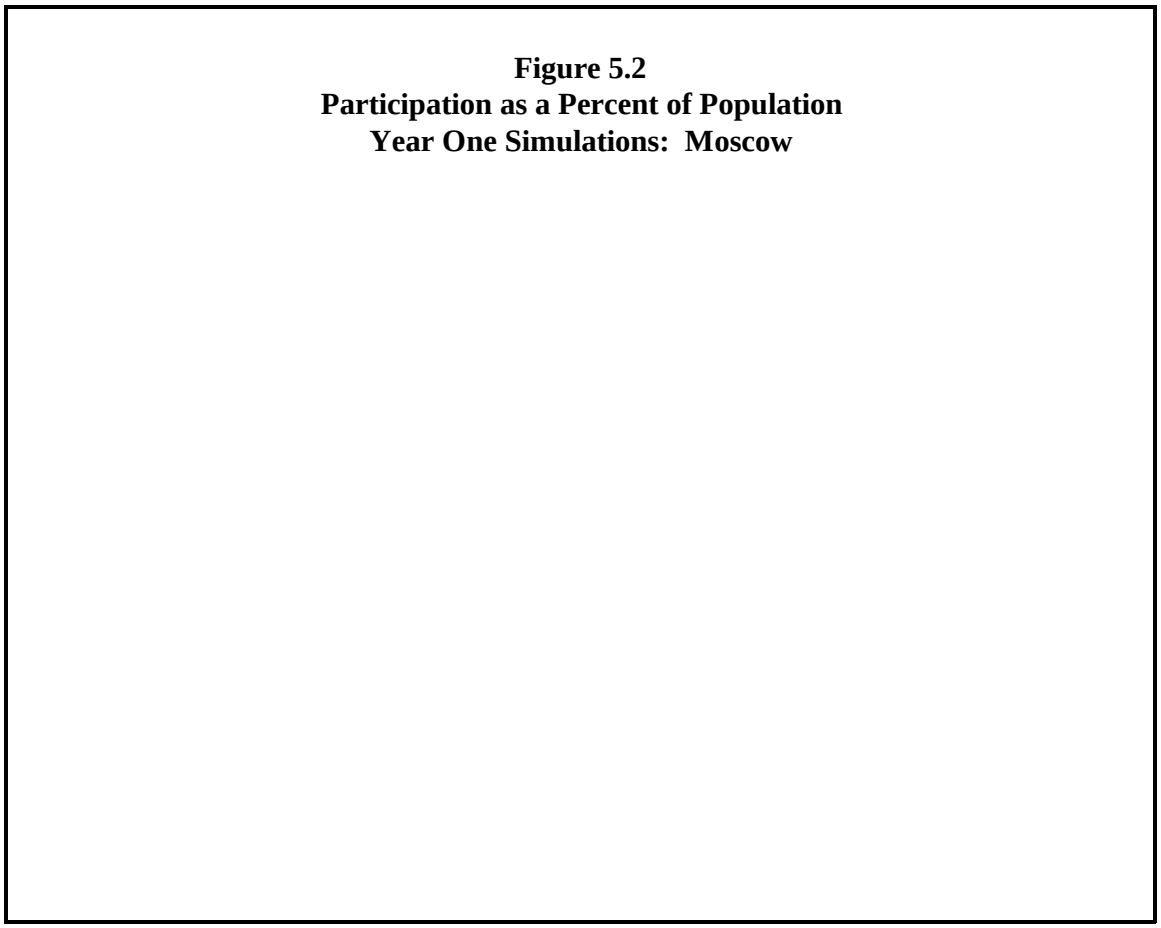
Figure 5.1 shows how net revenue varies with each strategy. Even under the most "expensive" strategy in which cost coverage increases rapidly but tenant contribution is low (Strategy 5), total housing allowance payments are only 47 percent of gross revenue, leaving 53 percent of gross revenue for other uses. The least "expensive" program (Strategy 2) will expend only 7 percent of gross revenue for housing allowances.

Figure 5.1
Net Revenue as a Percent of Gross Revenue
Year One Simulations: Moscow



As expected, the lower the value of ***t*** the higher participation. Participation rates in Moscow for the first year of each strategy are shown in Figure 5.2. In the first year under the assumption of income growth at 80 percent of inflation, participation is highest, 91 percent of the population, when ***t*** is only 5 percent of income and cost coverage is 25 percent (Strategy 5); participation is lowest, only 23 percent, when cost coverage is deferred, only 15 percent of full cost, and tenant contribution is 10 percent (Strategy 2). Under each assumption for cost coverage, raising ***t*** from 5 to 10 percent, reduces participation by at least two fifths.

Figure 5.2
Participation as a Percent of Population
Year One Simulations: Moscow

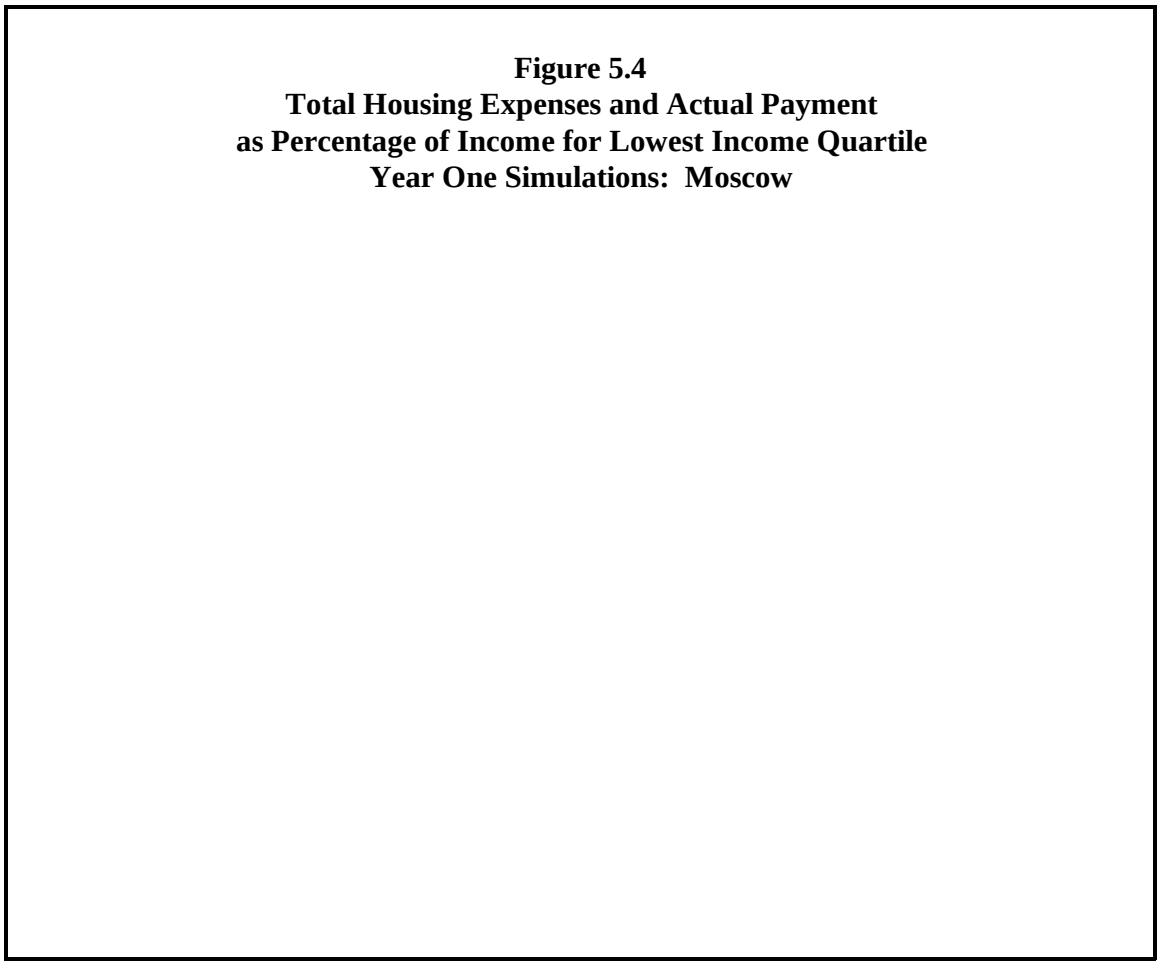


A result of lower overall participation is that a larger percentage of the subsidy is targeted to the lowest income quartiles. Figure 5.3 illustrates the percent of the total subsidy targeted to the poorest families in Moscow for the first year of the program. With participation at only 23 percent, the lowest and second lowest quartiles (that is, the lower half of the income distribution) receive 97 percent of total subsidies. When participation is 91 percent, 71 percent of total subsidies go to the lowest quartiles (Strategy 5). Over 70 percent of the total subsidy goes to the lowest half of the income distribution in all program strategies. In four of the six strategies, all households in the lowest quartile receive a housing allowance.

Figure 5.3
Targeting of Subsidies: Share of Total Subsidies to Lower Half of Income Distribution
Year One Simulations: Moscow

Under the housing allowance programs, average payment for housing as a percent of household income is reduced by at least 65 percent for households in the lowest quartile. Figure 5.4 illustrates the reduction in housing expenses for participants in the lowest income quartile. Under Strategies 5 and 6, those of rapid cost coverage increases, housing expenses before allowance payments would be 38 percent of income in the lowest quartile, but only 6 percent for the highest income quartile. After allowance payments, tenants' payments under Strategies 5 and 6 are 6 and 10 percent of household income, respectively. This constitutes a reduction of housing expenses of 84 and 74 percent, respectively, from what they otherwise would be.

Figure 5.4
Total Housing Expenses and Actual Payment as Percentage of Income for Lowest Income Quartile Year One Simulations: Moscow



The foregoing suggest several key lessons to be considered when designing a housing allowance-rent increase program:

- Higher values of ***t*** yield greater net revenue, after allowance payments are made, from given rent increases.
- Lower values of ***t*** increase participation.
- As participation rises, net revenue falls and subsidies are less well-targeted to the lowest income quartile.
- Faster increases in cost coverage result in smaller net revenue as a percent of gross revenue, unless combined with a higher ***t***.

Three Cities: Moscow, Novosibirsk, and Ufa

As expected, given the different income distributions, housing stock, and levels of current subsidies in the three cities, the housing allowance simulations produce considerably dissimilar results. Most notable are the percentages of net revenue to gross revenue, participation and targeting rates, and households' payment to income ratios.

Net revenue, or remaining revenue after allowance payments, as a percent of gross revenue varies significantly across the cities (see Figure 5.5). In Novosibirsk, where the current levels of subsidy are highest (tenants pay only 1 percent of the full cost of maintenance and communal services), net revenue as a percent of gross revenue is the lowest of the three cities under each strategy, falling as low as 29 percent under Strategy 5 (rapid cost coverage increases and deferred increases in tenant contribution). In this case, larger rent increases are necessary in order to reach the specified cost coverage and, therefore, sizable allowance payments are made to low-income renters. Moscow's net revenue as a percentage of gross revenue is the largest in all cases. Tenants currently pay a greater share of the full cost and the necessary rent increases are smaller.

Figure 5.5
Net Revenue as a Percent of Gross Revenue
Year One Simulations: Moscow

For all cities, however, the variation across strategies follows the same pattern: net revenue increases with ***t***. The higher the value of ***t***, the more revenue remains after payment of allowances. Contrast, for example, Strategies 1 and 2 in the first year with 15 percent cost coverage and ***t*** of 5 and 10 percent, respectively. As ***t*** increases, net revenue increases from 75 to 93 percent of gross revenue.

Participation rates also vary widely across the cities, as shown in Figure 5.6. Fewer households in Moscow are eligible for allowances than in the other two cities, with participation as low as 23 percent under Strategy 2 (deferred cost coverage and rapid increase in tenant contribution). Although participation in Ufa is somewhat higher, it follows the same pattern. As ***t*** increases from 5 to 10 percent participation drops considerably, by one-half to one-third in Ufa under each scenario and by slightly more in Moscow. Novosibirsk, on the other hand, contrasts quite sharply with Moscow and Ufa as participation falls no lower than 86 percent (Strategy 2) and is over 90 percent under all other variants. Higher rent increases create a larger burden for tenants and more households participate. In this case, the depth of the subsidy is reduced but ***MSR*** remains greater than tenant contribution for nearly all households.

Figure 5.6
Participation as a Percent of Population
Year One Simulations

A consequence of higher rates of participation is that a smaller share of total subsidy goes to those in the lower income quartiles, as illustrated in Figure 5.7. That is not to say that poor households are receiving smaller payments, but merely that a larger share of total subsidies is distributed across income quartiles as participation in the upper income quartiles increases. As expected, Novosibirsk, the city with the highest rates of participation, has the lowest targeting rate, or percentage of the total allowance to the lower income quartiles. Lower-income households, however, are still receiving greater levels of subsidy since program eligibility is income based.

Figure 5.7
Targeting of Subsidies: Share of Total Subsidies to Lower Half of Income Distribution
Year One Simulations

Another interesting comparison across the three cities is the households' payment to income ratios, or the share of income actually spent on housing after the contribution of the allowance payment (see Figure 5.8). In the model, ***t*** is a target figure, which will be the share of income spent on housing only if a household is living in exactly the number of square meters in their ***MSR***. As this is not often the case, there is much variation in payment to income ratios. In Novosibirsk, households in the third quartile are

considerably "overhoused," i.e., living in more space than the social norm in the ***MSR*** for their family size. Consequently, their payment to income ratios are one and a half to two times the value of ***t***, reaching 47 percent of income under Strategy 6 (rapid cost coverage increases and rapid increases in tenant contribution) in the fourth year of the program.

Figure 5.8
Housing Payment as Percentage of Income
for Lowest Income Quartile
Year One Simulations

The results for Ufa indicate that, according to the space schedule employed in the simulations, households in the lower income quartiles are extremely "underhoused", that is, living in less space than their allowance. Household payments in the first year are only 1 percent of income under three of the six strategies.

Table 5.1 illustrates the extent of "over- "and" under-housing" in the three cities according to number of rooms in the flat. In both Novosibirsk and Moscow the majority of units with 4 and 5 rooms are occupied by overhoused families, that is, households who, according to their ***MSR***, should be in smaller

units. The greatest percentage of "overhoused" units of each size are in Novosibirsk, and the smallest percentage in Ufa.

Table 5.1
Overhoused Households by Number of Rooms
(as percent of total)

Rooms	Moscow	Novosibirsk	Ufa
1	17	25	15
2	27	30	15
3	47	55	38
4	81	60	16
5	100	100	0

Source: National Income and Expenditure Survey, 1992

In Novosibirsk, 36 percent of all households are overhoused compared to 28 percent in Moscow and only 17 percent in Ufa. The dissimilarity of the results suggest that the space allowances could be adjusted to more adequately reflect the size of dwelling stock in each three cities.

Another of the major policy decisions facing Novosibirsk and Ufa is whether or not to include tenants in privately owned, single-family housing among those eligible for housing allowances. In Novosibirsk, a number of those tenants in individual housing are pensioners and will encounter difficulty maintaining their housing and making communal services payments on a fixed income as costs rise. Therefore, the Year 1 strategy of 20 percent cost coverage, tenant contribution of 10 percent, and wages rising at 80 percent of inflation was simulated, including individual housing among those eligible. The price of maintenance and communal services is assumed to be the same for tenants of individual housing; however, their payments are not made to the government or to a department. Clearly, their inclusion will result in a decrease in net revenue, as expenditure on housing allowances increases without tenant contribution.

The simulation of this strategy shows that 88 percent of households living in individual housing participate in the program, comprising 8 percent of all participants. Individual housing tenants receive 9 percent of the total subsidy, with an average allowance payment to recipients in individual housing of 579 rubles per month. The average allowance payment to other recipients, in municipal, departmental and cooperative units, is 543 rubles. Net revenue falls by 11 percent, with 10 percent more participants, when individual housing is included in the allowance program. However, despite the reduction in net revenue, gross revenue can still cover the total cost of the housing allowance program, including allowances to those households in individual housing. Moreover, 41 percent of gross revenue is left after allowances payments are made, compared to 47 percent of gross revenue when individual housing is excluded.

Another strategy proposed by State Committee on Architecture and Construction (Gostroi) is to increase fees for maintenance and communal services to 50 percent of full cost in the first year with a tenant contribution of 10 percent of household income. This program was simulated for both Moscow and Novosibirsk. However, given the effects of other programs for these cities relative to those for Ufa, one can infer the results for Ufa from those presented here. With cost coverage of 50 percent and ***t*** of 10 percent, 91 percent of all households in Moscow receive some housing allowance. This participation rate is the same as that for the program of 25 percent cost coverage with ***t*** of 5 percent (Strategy 5), and exceeds that of all other programs for Moscow. Net revenue as a percent of gross revenue is 53 percent, also the same as for Strategy 5. However, actual tenant payment as a percent of income is double that of Strategy 5 which means that households in the lowest quartile will pay, on average, 12 percent of their income for housing expenses.

While this program looks feasible for Moscow, other simulations have show that results do differ across cities. Therefore, this program may not work elsewhere. In Novosibirsk, for example, where participation is extremely high relative to other cities, net revenue is lower under all strategies. Participation under this program would be 100 percent, as it is for 25 percent cost coverage with ***t*** of 5 percent, and net revenue would be very low. Given the other priorities a city may have for using net revenue, increasing fees to half of cost only to return the larger part the revenues to all households in the form of a housing allowance is not a sensible alternative. Moreover, the administration of a housing allowance program under which all households are eligible would be an arduous task, to say the least.

Furthermore, this program would not be advisable, in general, in cities where more households are "overhoused" and paying a larger share of income than ***t*** for housing expenses. Under the proposed program, tenant payments as a percent of income would be extremely burdensome for "overhoused" families. In Novosibirsk, housing payments would be, on average, 26 percent of income for those in the third quartile. Therefore, a more gradual approach than that proposed by Gostroi would ease the transition for tenants, allow the city to establish the necessary administrative procedures, and would generate more revenue for the city budget.

6. FULL PROGRAM IMPLEMENTATION

How do the outcomes for the six strategies differ over the five years? Do the results differ much across the cities? Does it matter which city is used as a model?

As one can see from the graphs included in Appendix A, although the broad patterns are similar, the effects of the housing allowance-rent increase programs do vary across the cities.[10] Therefore, when examining the outcome of the strategies, policy-makers should pay particular attention to the city which most closely resembles their own city. Characteristics of the city must be taken into consideration when defining the key program parameters. The income distribution of a city and level of current subsidy

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The full set of results for each of the simulations are presented in the tables in Appendix C.

powerfully affect the outcomes of the program through participation and rent increases necessary to reach charges at full cost of maintenance and communal services. Size distribution of the housing stock also plays a role in determining social norms for calculating ***MSR***, since norms must be reasonable based on household size and available housing units.

Since eligibility for the housing allowance-rent increase program is income-based, the income distribution of a city obviously influences the outcome of the program. However, the extent of the city's current subsidies for maintenance and communal services determines the magnitude of the rent increases necessary to reach full cost coverage. It is the interaction of these two components that eventually determine participation in the program and the level of net revenues generated by the rent increases after allowance payments are made. In Novosibirsk, for example, the current level of subsidy is the highest among the three cities and average household income, although not dissimilar to that of Moscow, is the lowest. Therefore, participation there is the highest and net revenue is the lowest of the three cities under each of the strategies.

The size distribution of stock should be taken into consideration when establishing the space allowance for determining ***MSR***. Space schedules which are too generous and allow more space than available in the city provide households with a larger allowance payment than necessary to appropriately house the family and, thus, reduce net revenue without greater housing consumption. Space schedules that provide less space than necessary or available to the average family, create a considerable financial burden for the household as they are expected make up the difference between the low ***MSR*** and their current rent.

The full five year housing allowance-rent increase program will be presented below for Ufa (Figures illustrating the results of the strategies in all cities can be found at the end of this section). Although the broad patterns are similar for the other cities, the overall levels of each of the indicators and the magnitude of changes resulting from the different parameters do vary among them. Therefore, further examination of the results of a another city which may more closely parallel one's own city may be also useful.

Strategy 1 entails deferred cost coverage increases and steady increases in tenant contributions. In the first three years net revenue rises slowly, reaching 68 percent, but then falls as cost coverage begins to increase more rapidly. Participation falls in the first three years then rises in the last two years as housing costs increase, but remains between 70 and 80 percent. The share of subsidy follows inversely the changes in participation, as the total is distributed among the participants.

Strategy 2 includes deferred cost coverage increases and rapid increases in tenant contribution. This strategy provides the maximum net revenue as a percent of gross revenue, starting at 86 percent, in the first years of the program then falls steadily as cost coverage increases. This would enable cities to use revenues for other purposes, such as maintenance and rehabilitation. Participation rises sharply as cost coverage increases in the third and fourth years but is the lowest relative to other strategies. Consequently, the share of subsidy received by the lower half of the income quartile is almost always above 80 percent, only falling below 80 percent in the fifth year.

Strategy 3 involves steady cost coverage increases and deferred increases in tenant contribution. This strategy is a more conservative approach with slow increases in net revenue and smaller increases in tenant contribution. Participation is initially high but steadily declines as households are expected to contribute more; the share of subsidy to the lowest quartiles is always more than 60 percent.

Strategy 4 includes steady cost coverage increases and rapid increases in tenant contribution resulting in fairly stable levels of net revenue as a percent of gross revenue, between 60 and 71 percent. This strategy provides net revenue as a percent of gross revenue second only to Strategy 2. Participation steadily increases and is higher than that of Strategy 2, but remains relatively low compared to others. The major difference between the two, Strategies 2 and 4, is in the tenant payment. Strategy 4 results in slightly higher tenant payments as a percent of household income. The trade-off is between net revenue and tenant contribution. However, in the case of Ufa, because household income is relatively high, the difference in tenant contribution as a percent of income is insignificant. The City would be better off with the revenue increases of Strategy 2 and the lower participation than the savings to the household under Strategy 4.

Strategy 5 rapidly increases cost coverage and defers increases in tenant contribution and results in very high rates of participation and low net revenue as a percent of gross revenue. Because participation is high, between 80 and 92 percent, subsidies are less well-targeted to the lower income groups. In this strategy, rapid cost coverage is offset by low tenant contributions and the increases in rent revenue are merely channeled back to tenants in the form of allowances. Additionally, "overhoused" families will be hardest hit under strategies of rapid increases in cost coverage as they are expected to pay the full cost of additional space.

Strategy 6 combines both rapid increases in cost coverage and rapid increases in tenant contribution. Net revenue, participation, and targeting are all moderate and do not change dramatically.

The figures in Appendix A illustrate the effects of the alternative strategies on the indicators:

- cost coverage;
- net revenue as a percent of gross revenue;
- payment as a percent of income for the lowest income quartile; and
- the share of subsidies to the lowest income quartiles.

Figures for each indicator show how the indicators vary with the alternative strategies. Separate figures are presented for each city.

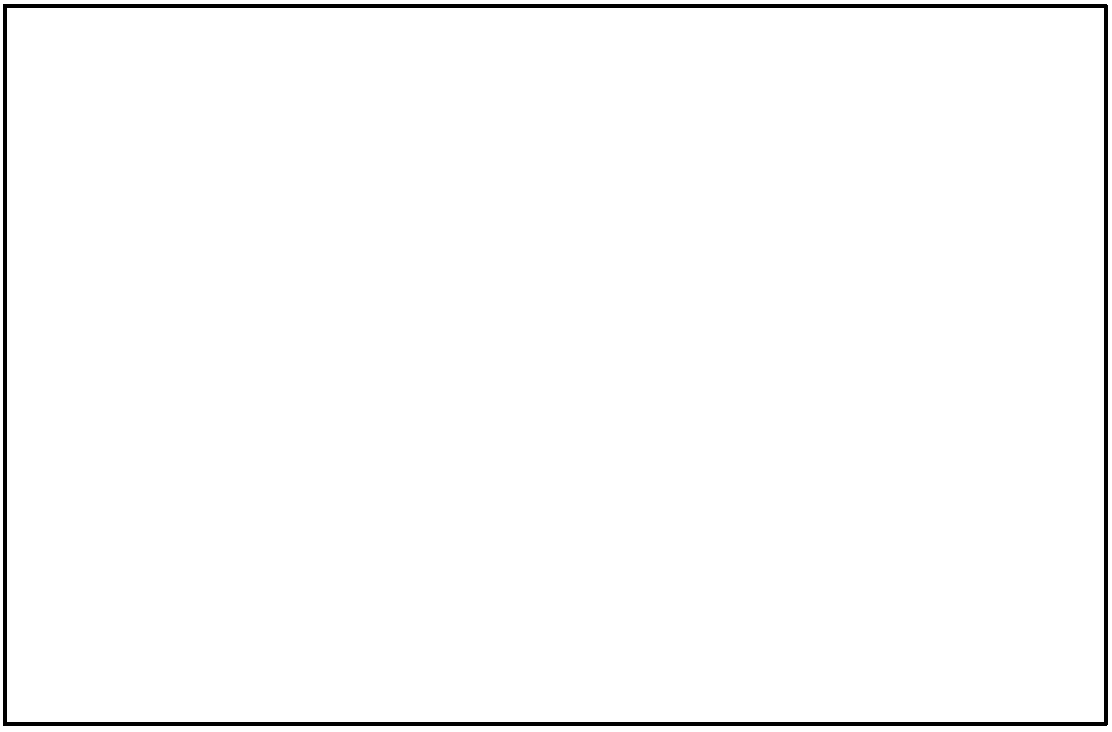
7. CONCLUSION

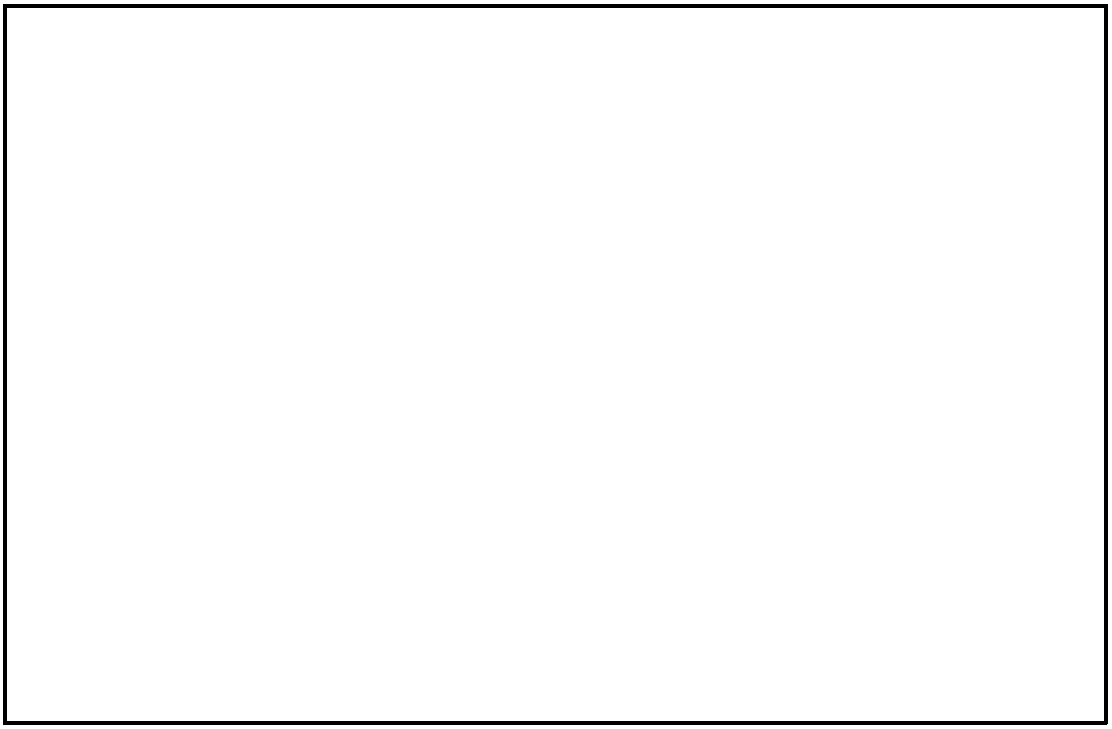
Although there appears to be a great deal of choice open to republic and city governments in the formulation of a rent increase/housing allowance policy, policymakers are not completely free of constraints in setting program parameters. The current situation in a city, in terms of income distribution, housing

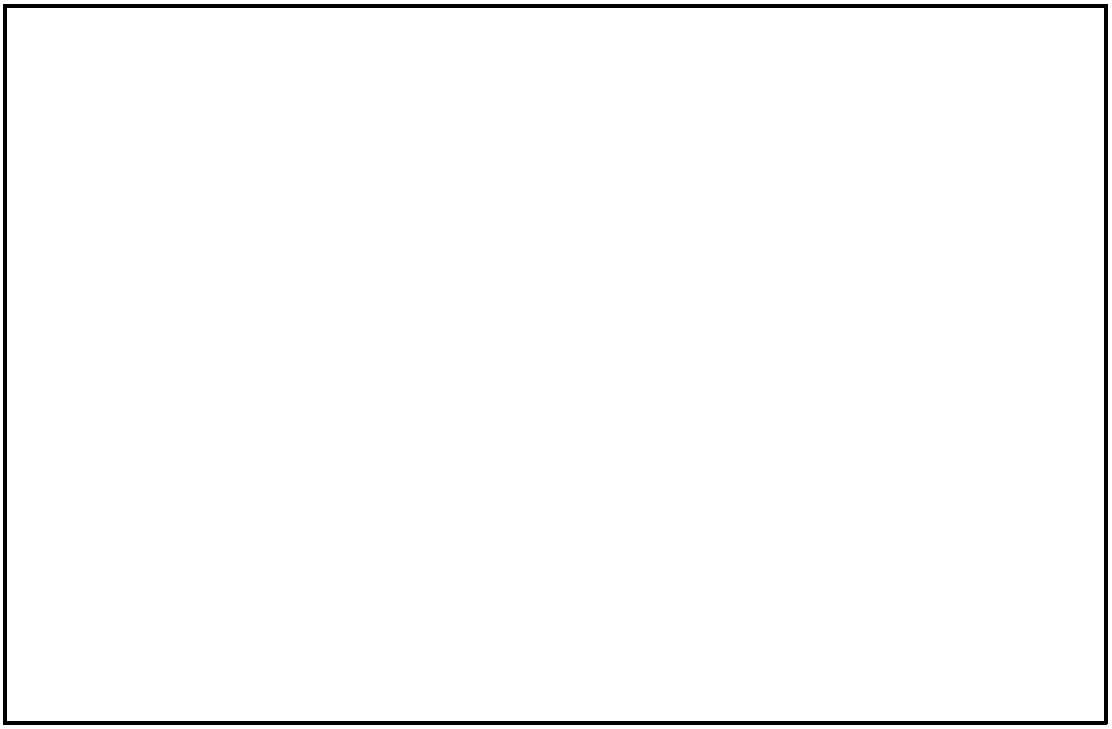
stock, and operating costs in the housing sector, strongly constrains the range of choices available. Unthoughtful decisions and simple national directives, such as the proposal to increase maintenance fees and communal services charges to 50 percent of full cost in the first year, could be detrimental to large sectors of the population in some cities, particularly those households who are "overhoused." Moreover, some program designs which result in very high participation rates from the start involve such an administrative burden as to make then infeasible.

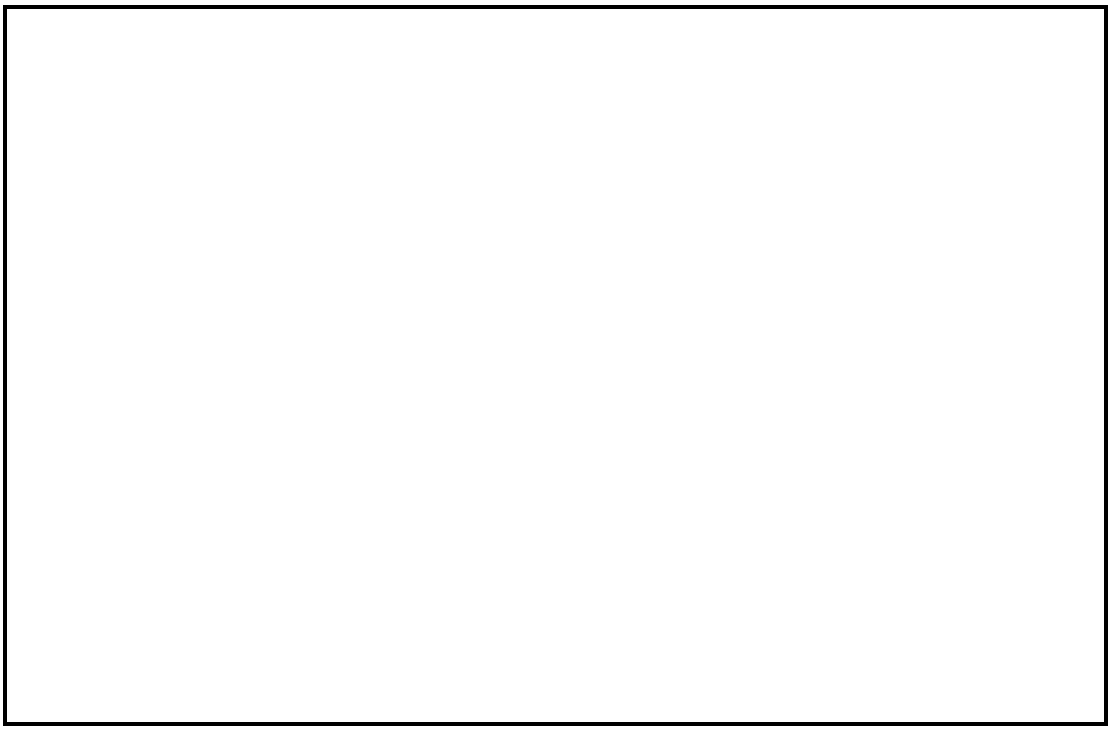
Therefore, careful analysis of current situation in a city is essential in order to prevent the negative effects of an ill-suited policy. Some cities may even choose to seek advice from housing policy experts. For example, the Institute for Housing and Communal Economy is currently providing assistance to several republics and cities. Most importantly, however, thoughtful discussion, based on hard analysis, must take place among the policy-makers formulating the program in order to determine the parameters best suited to their city.

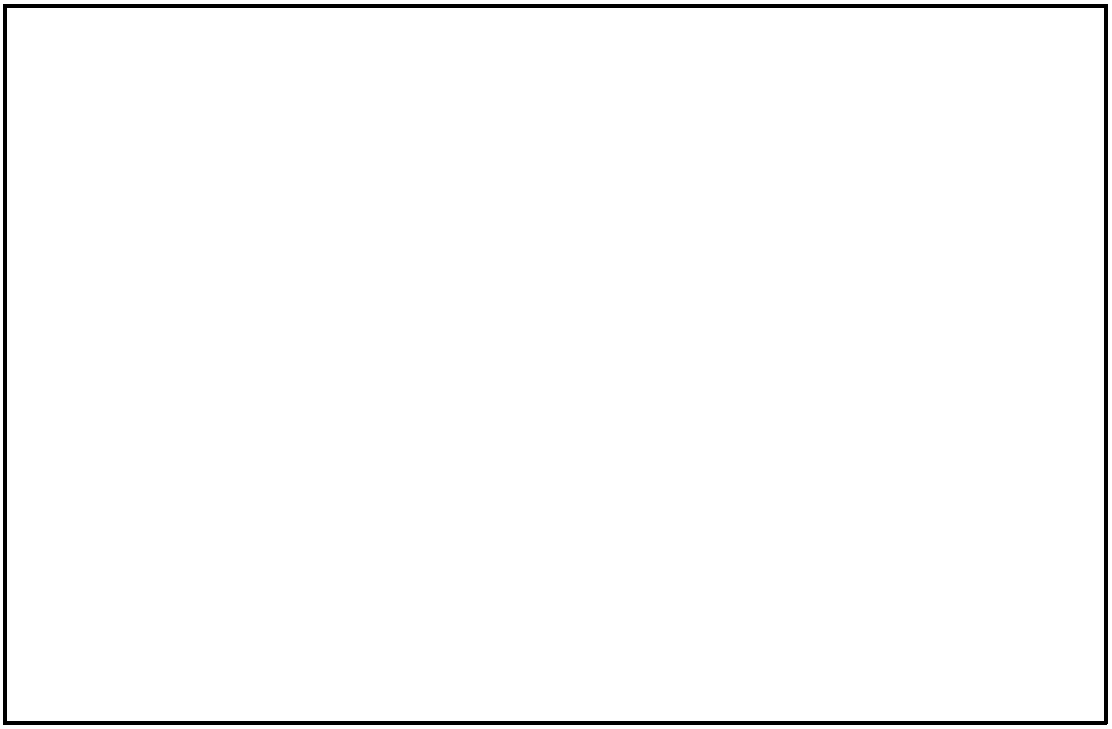
APPENDIX A
FULL PROGRAM IMPLEMENTATION

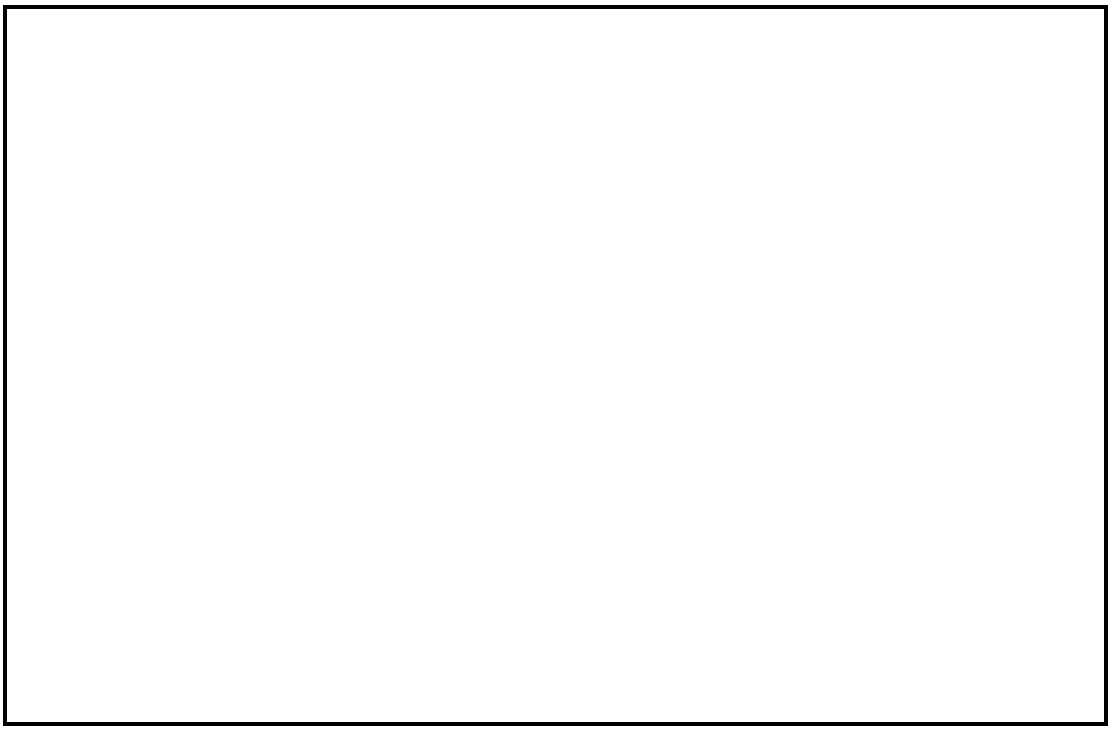


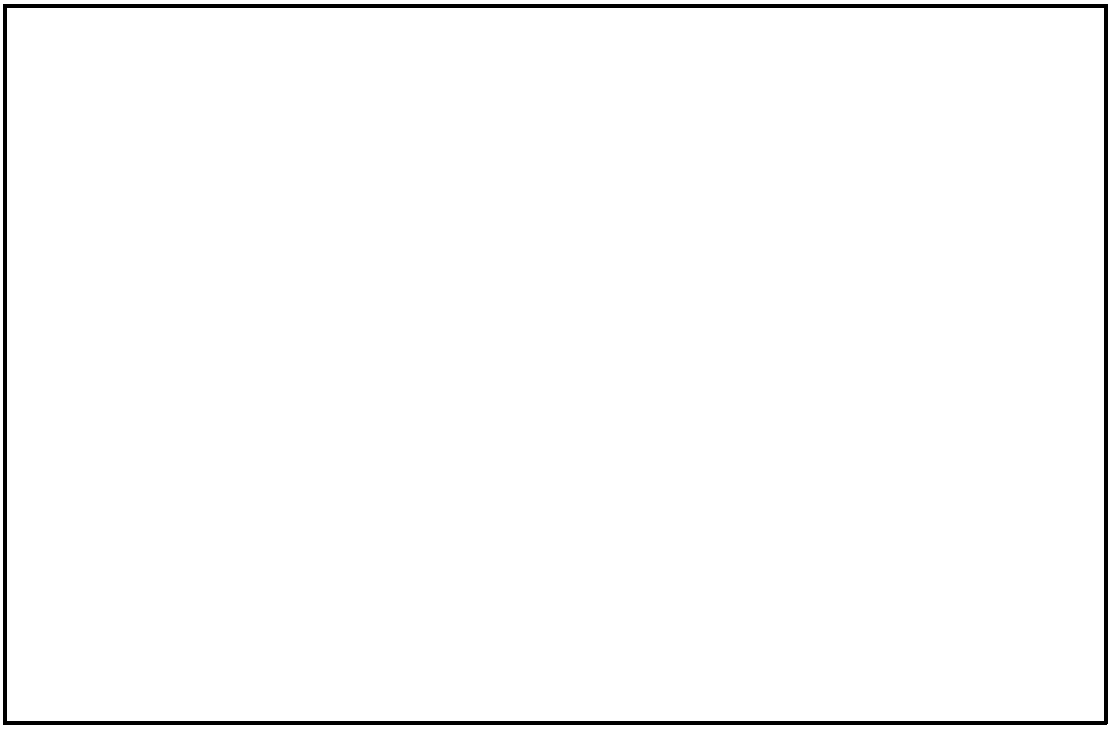


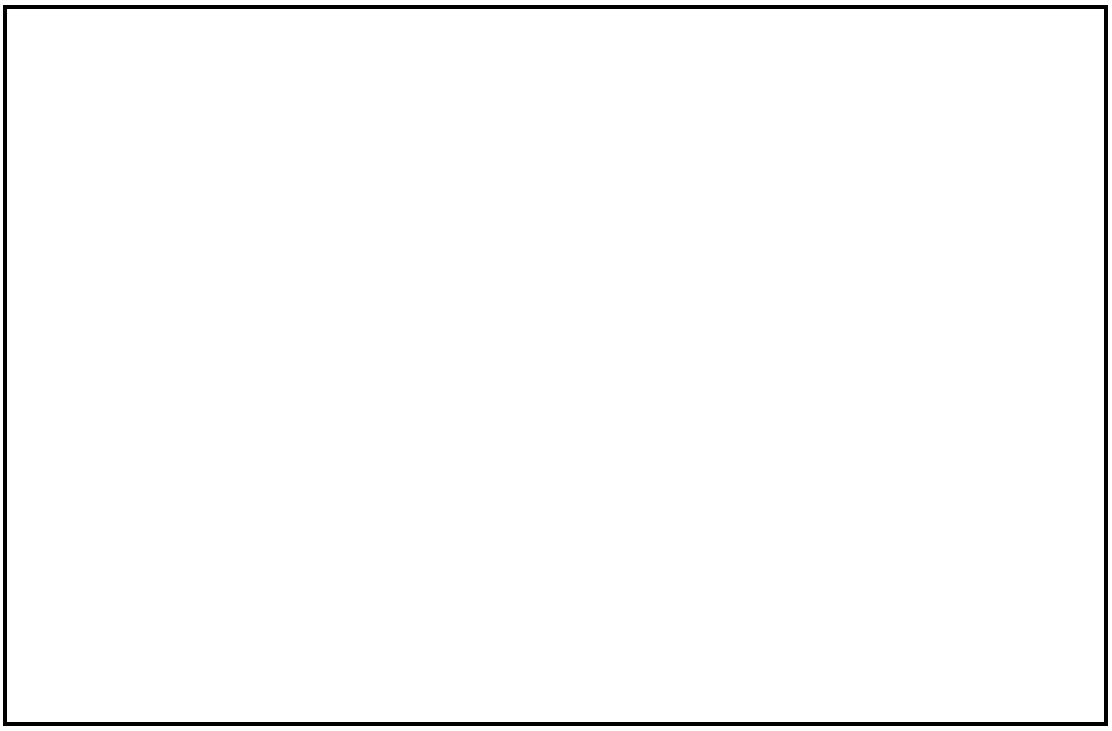


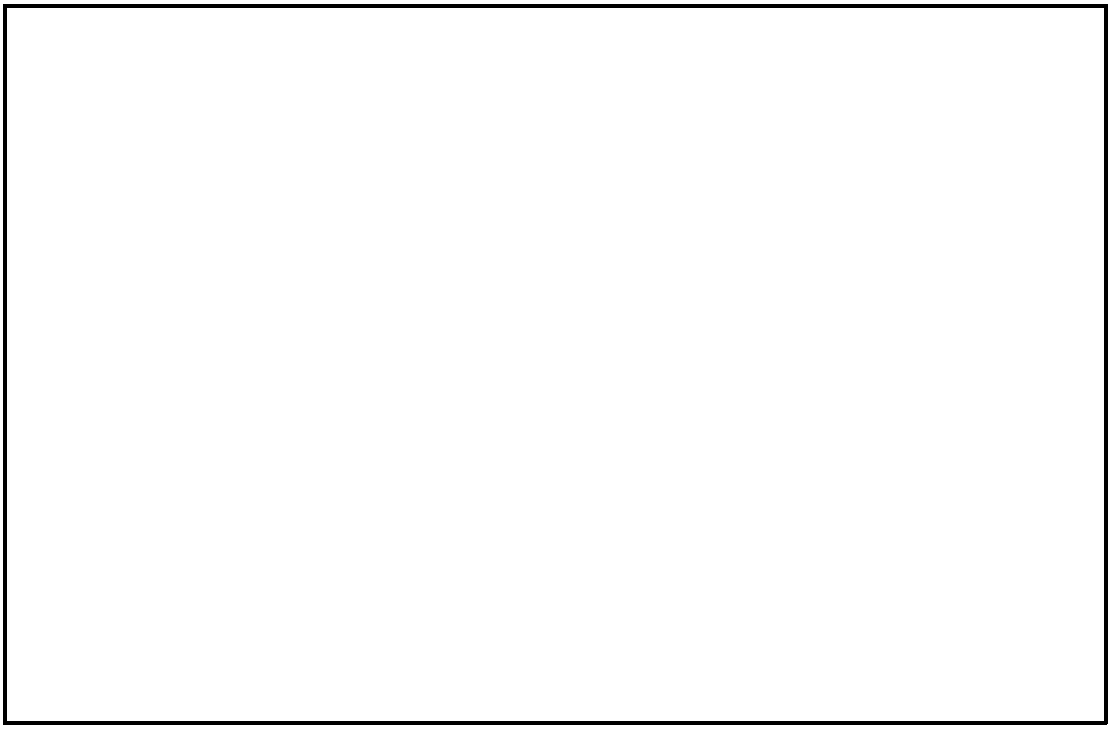


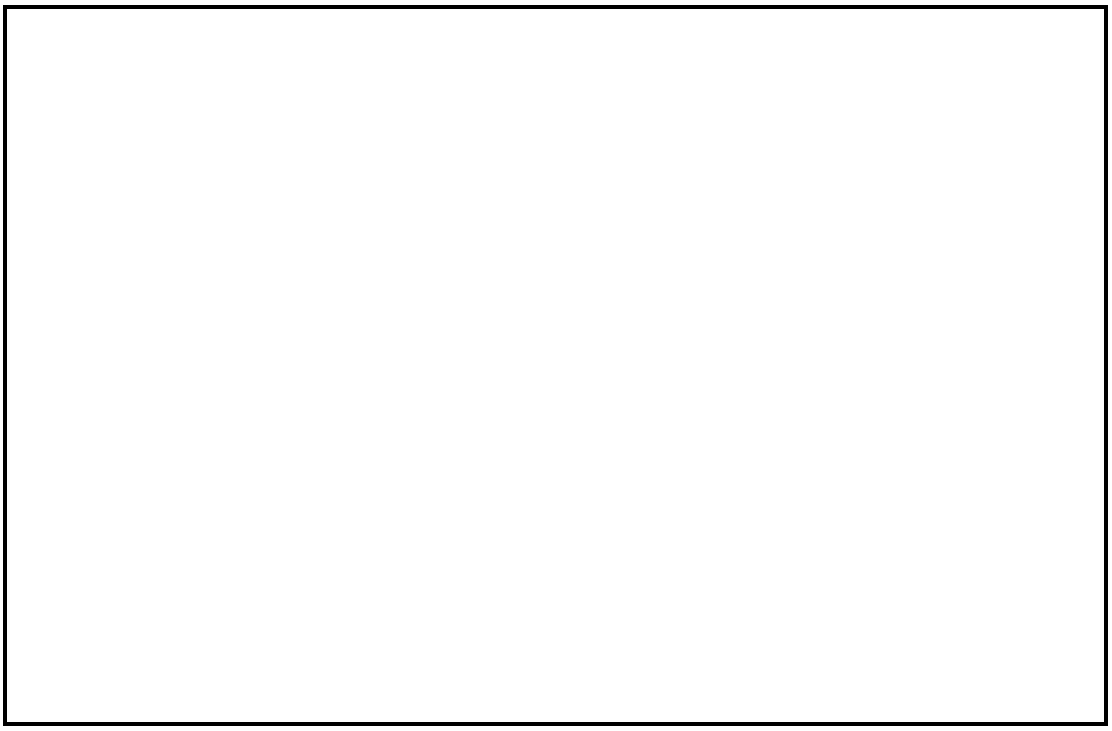


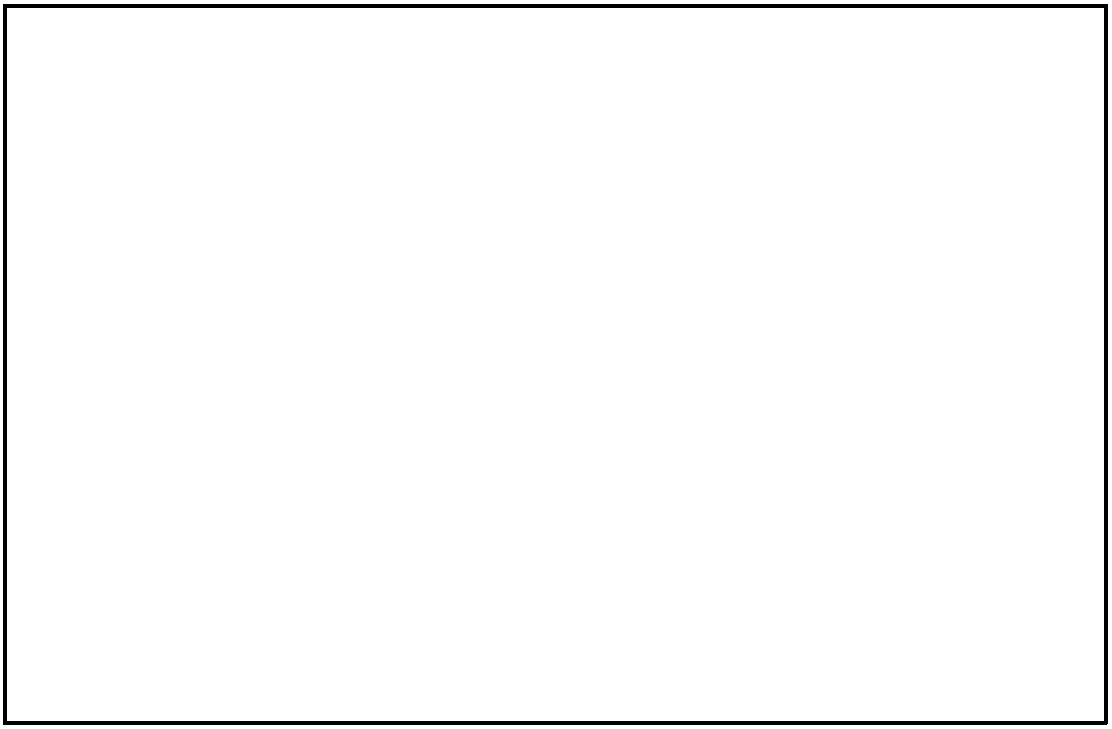


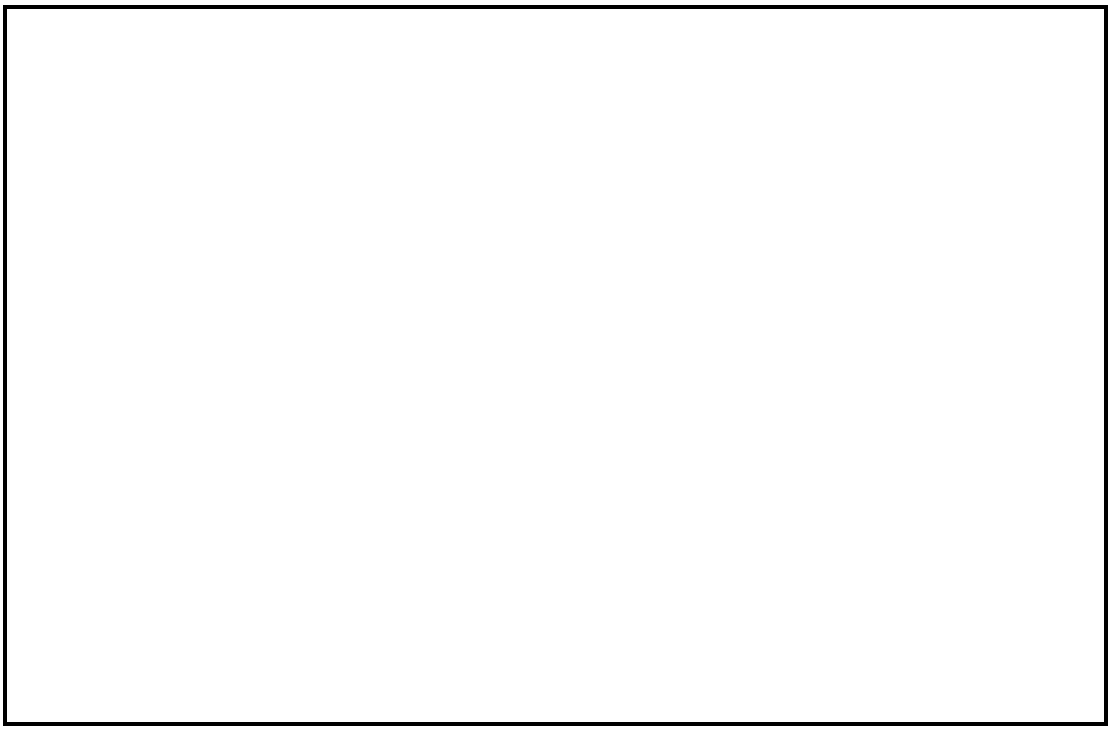


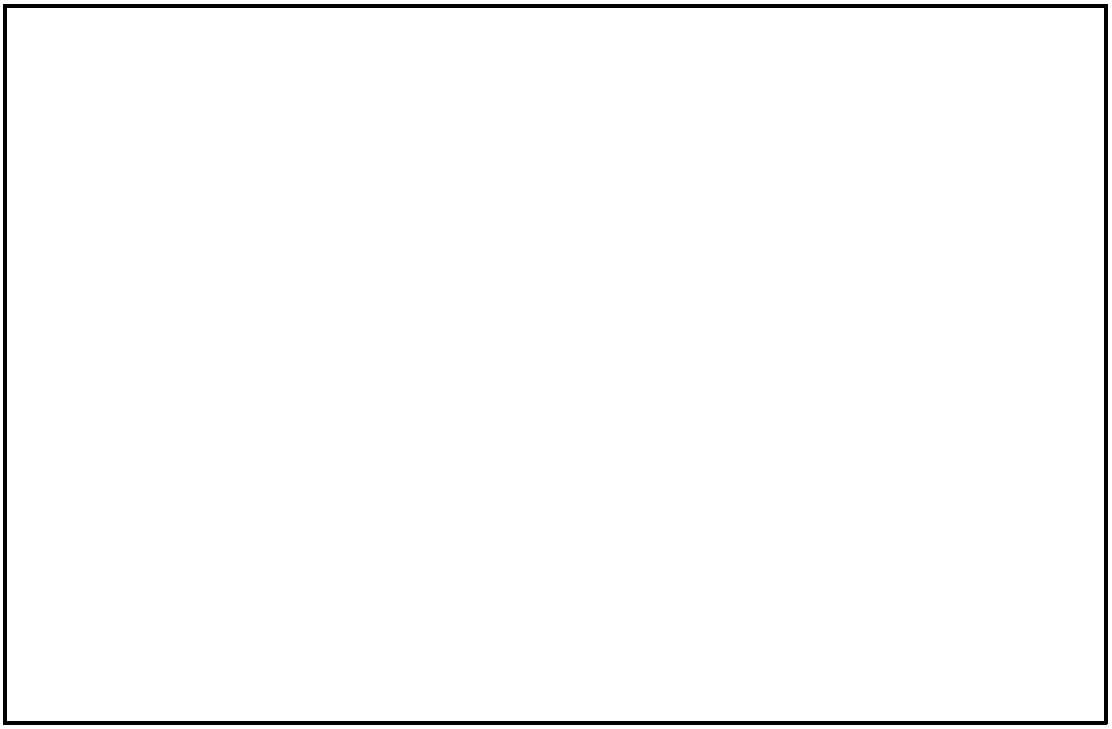


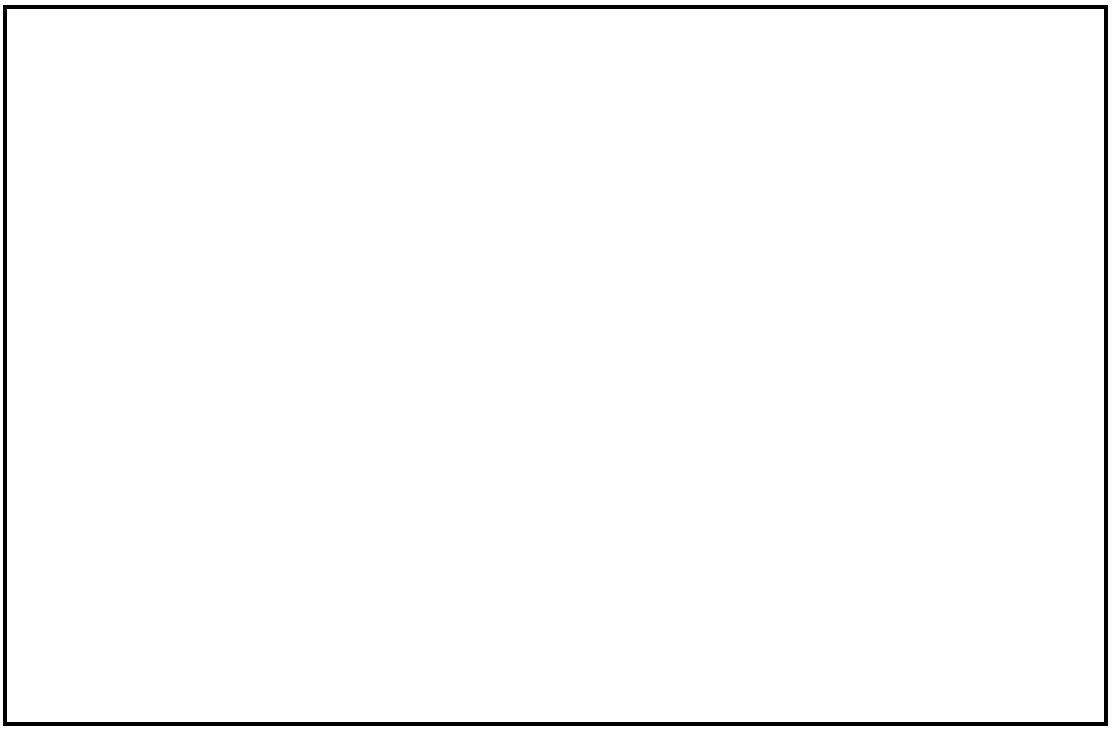


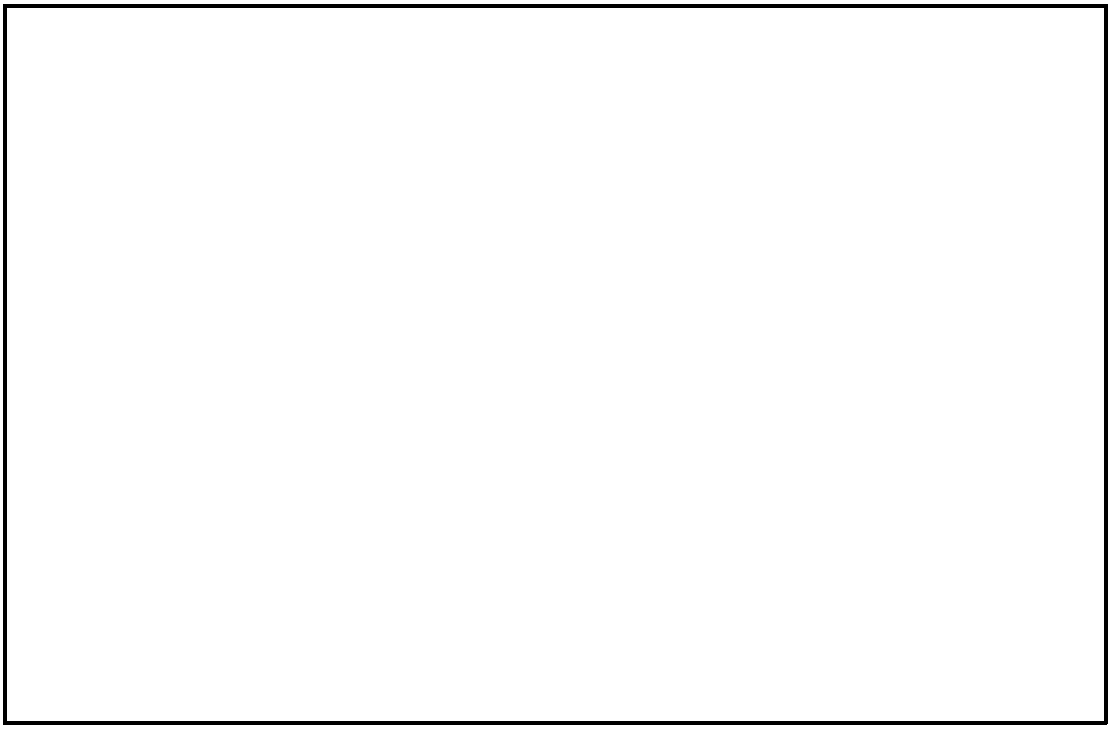


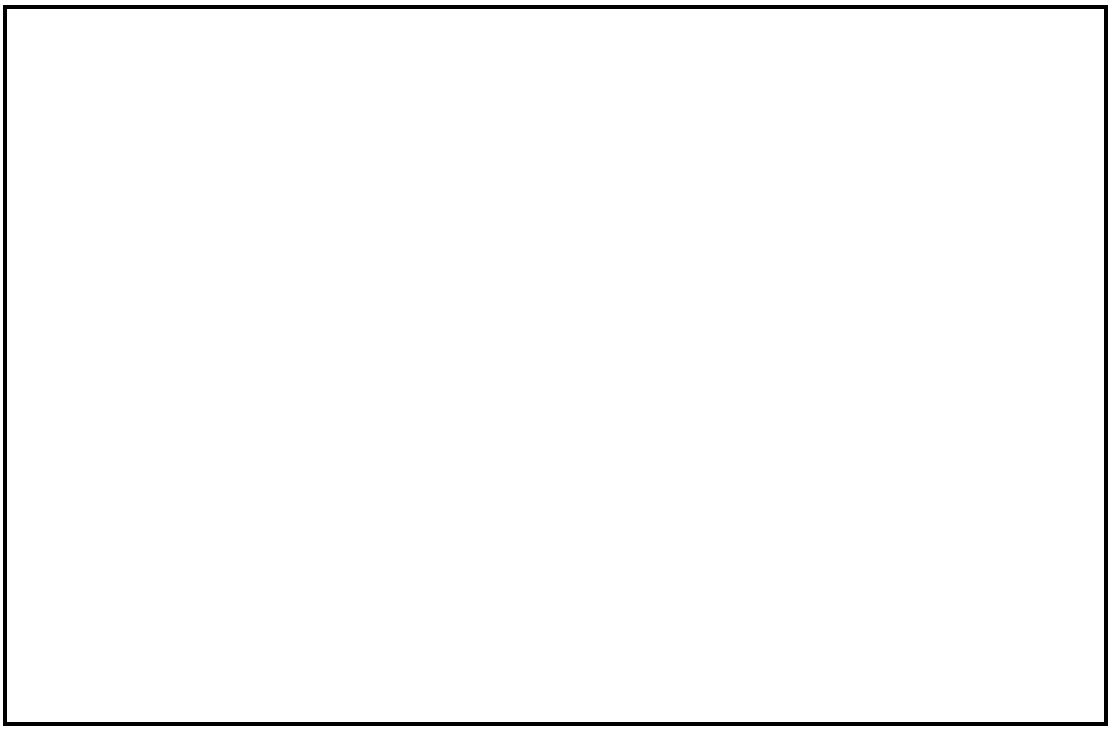


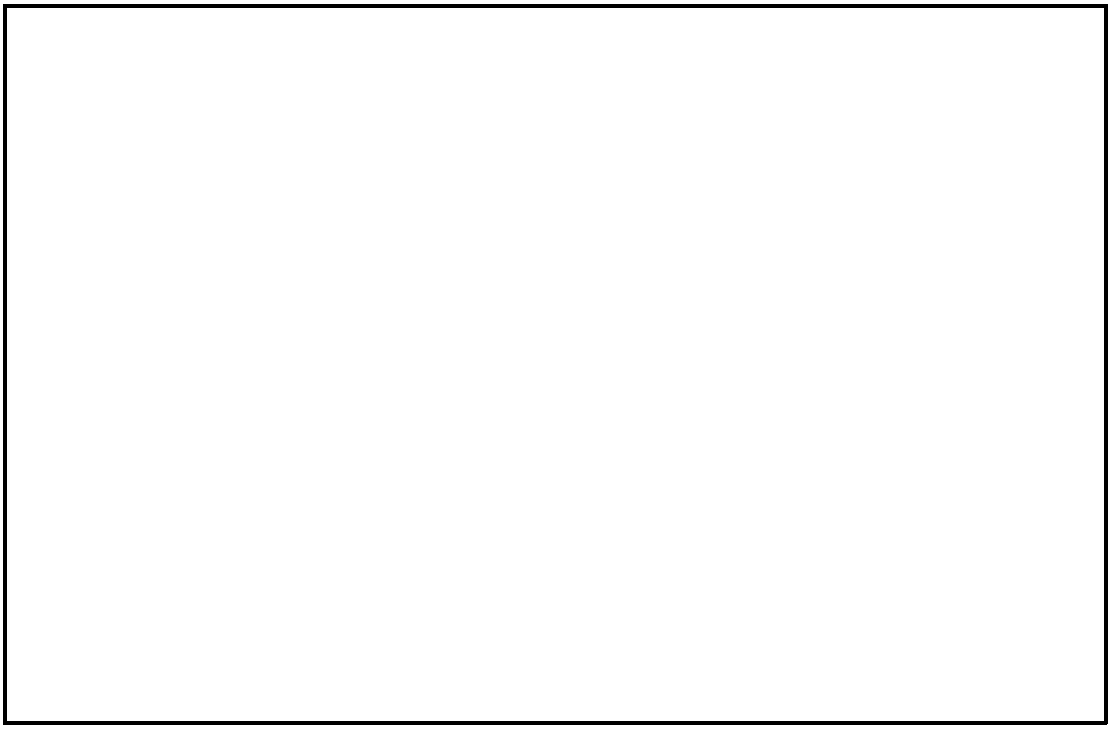


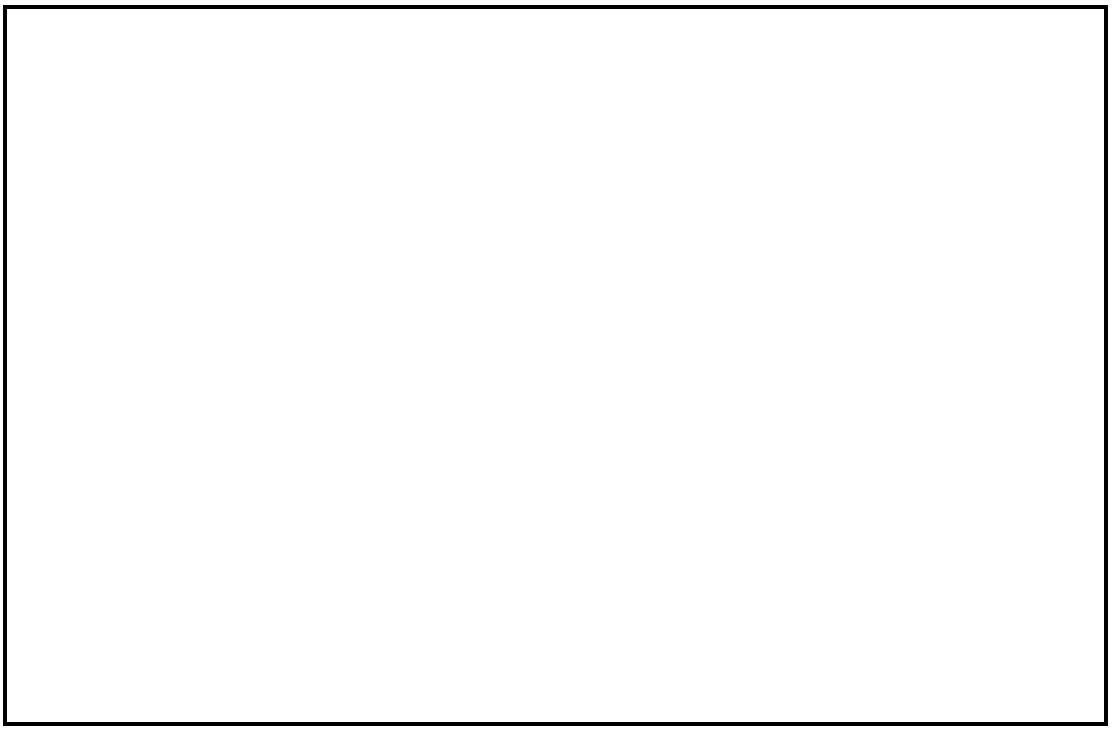


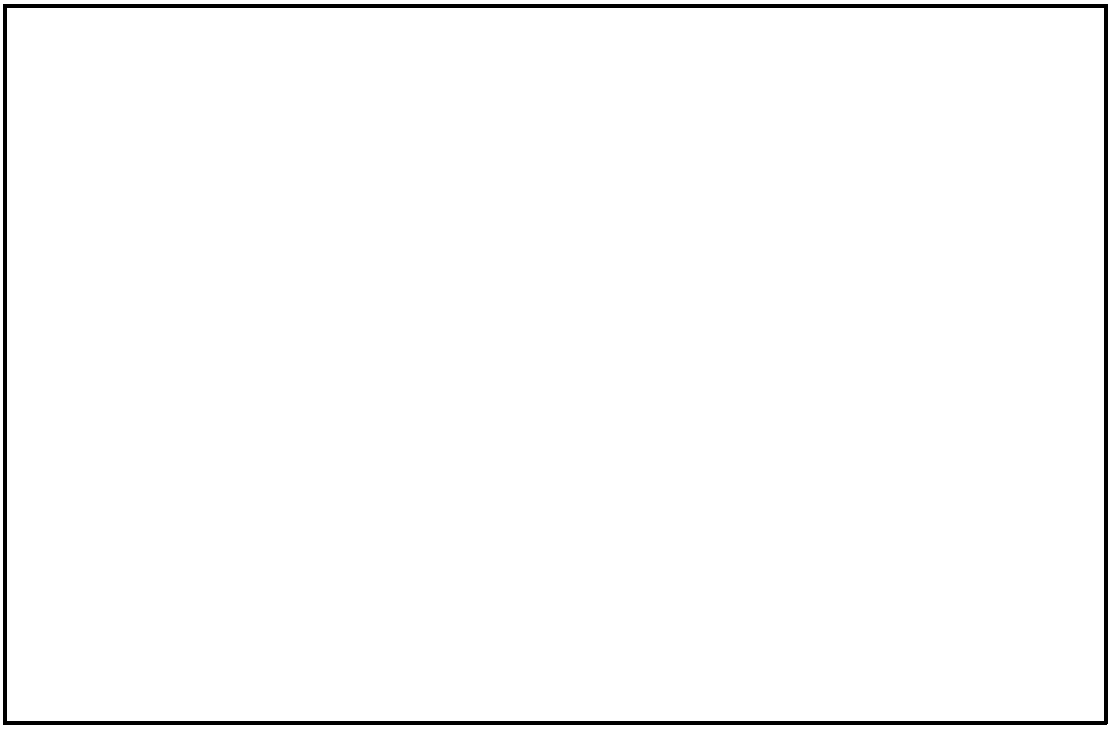


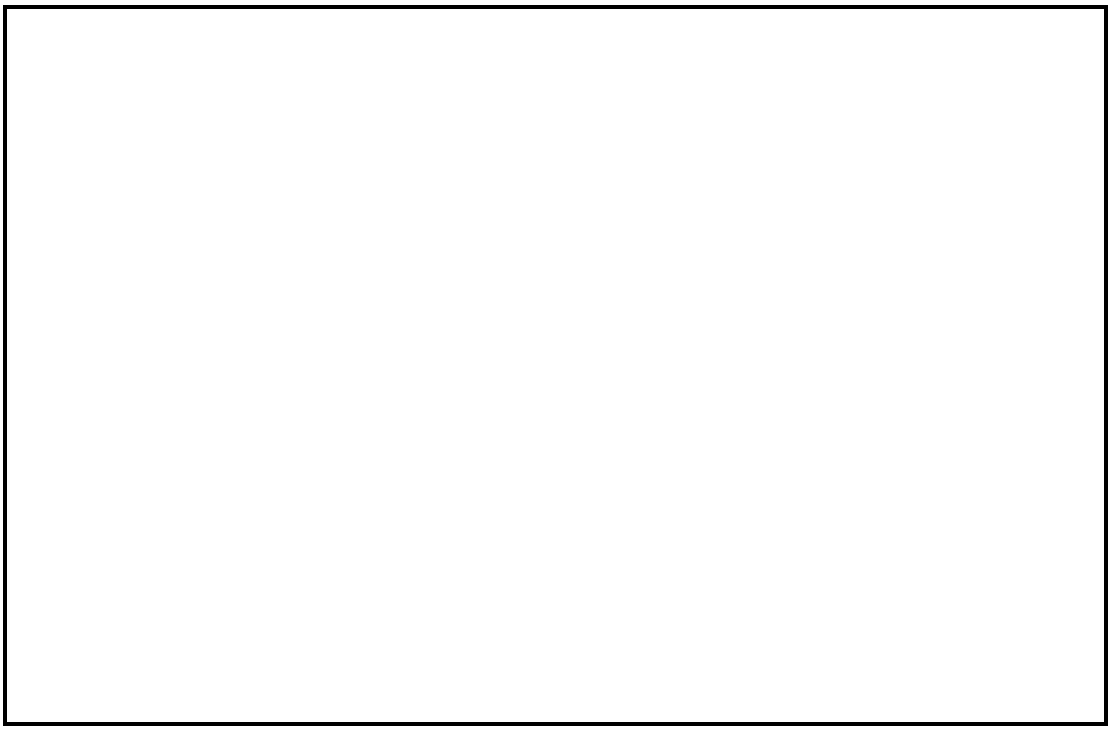


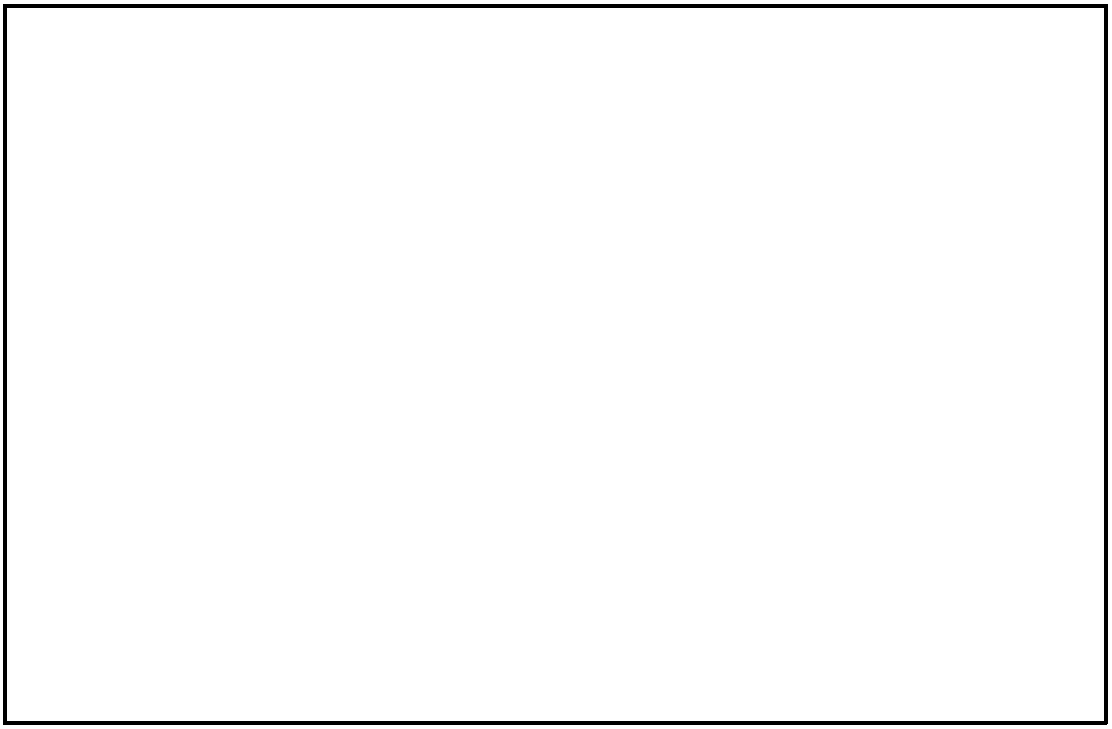


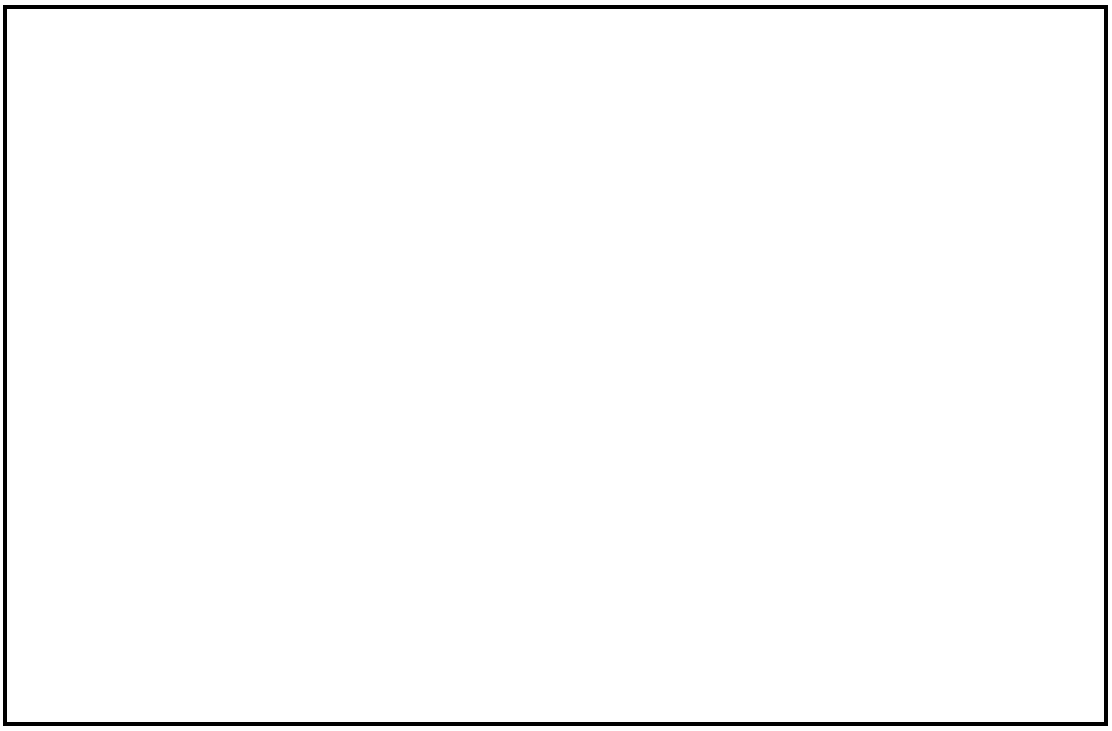


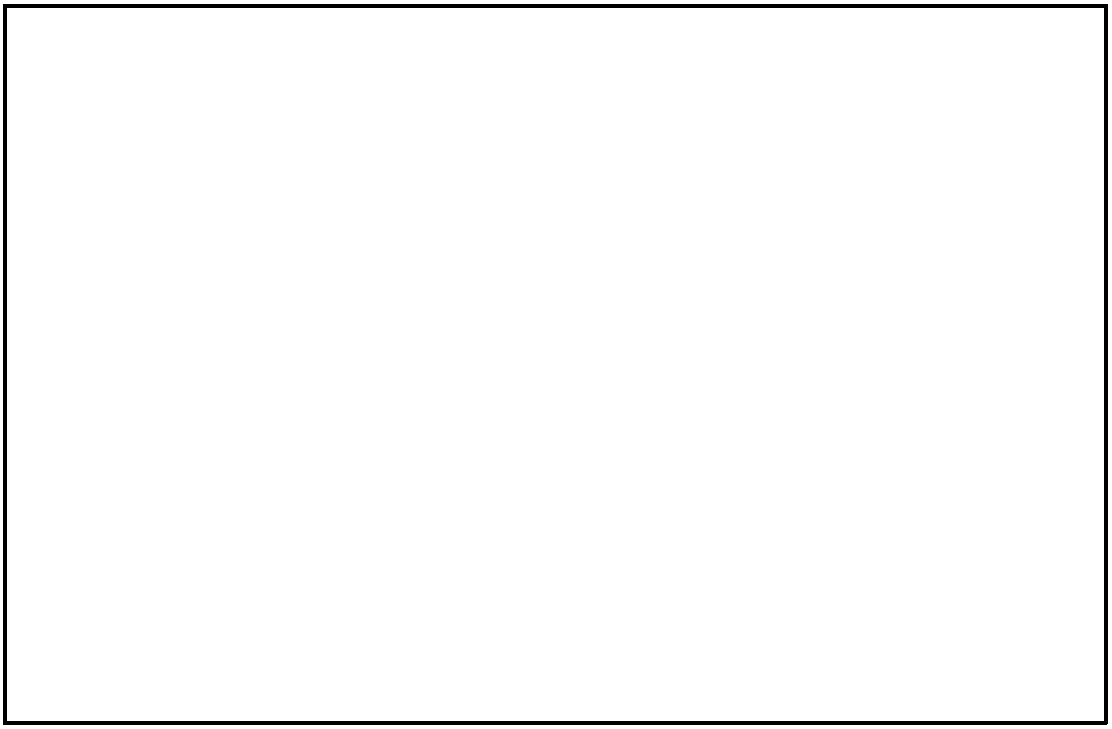


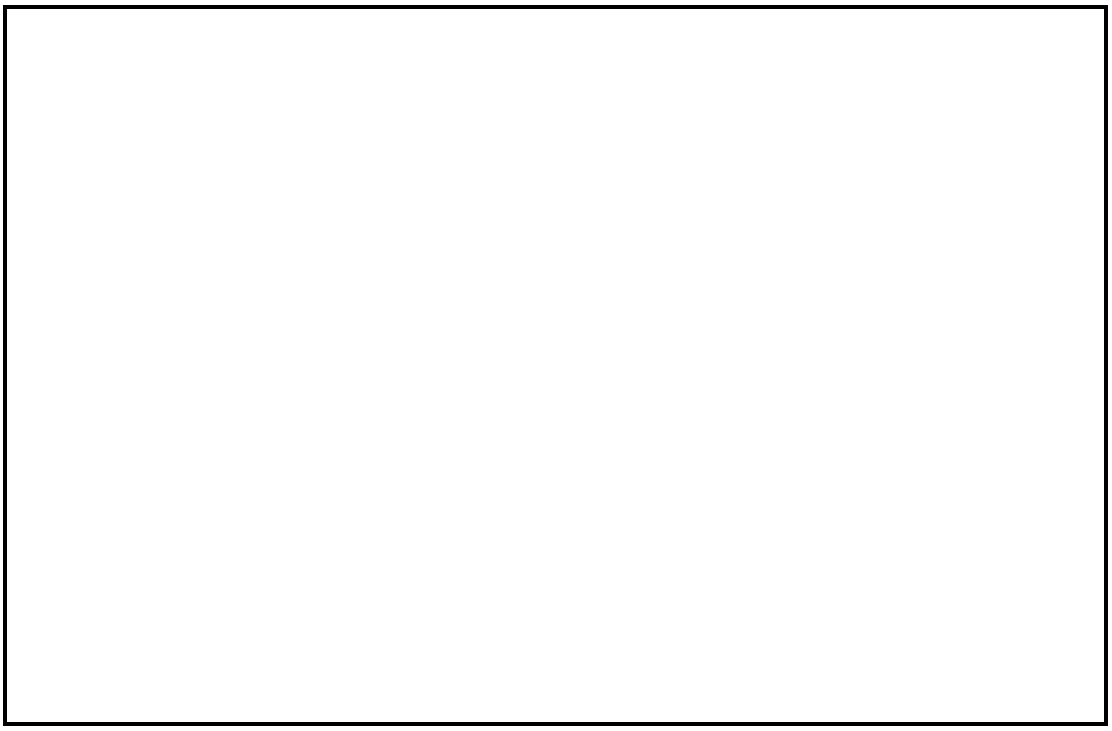


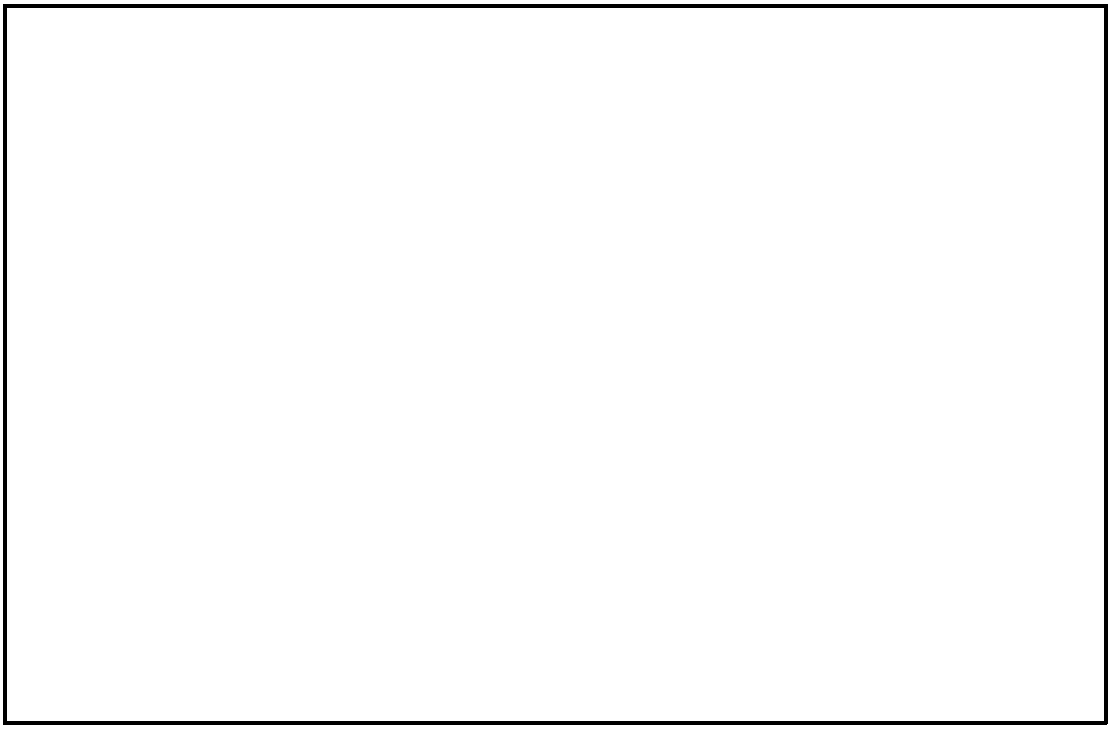


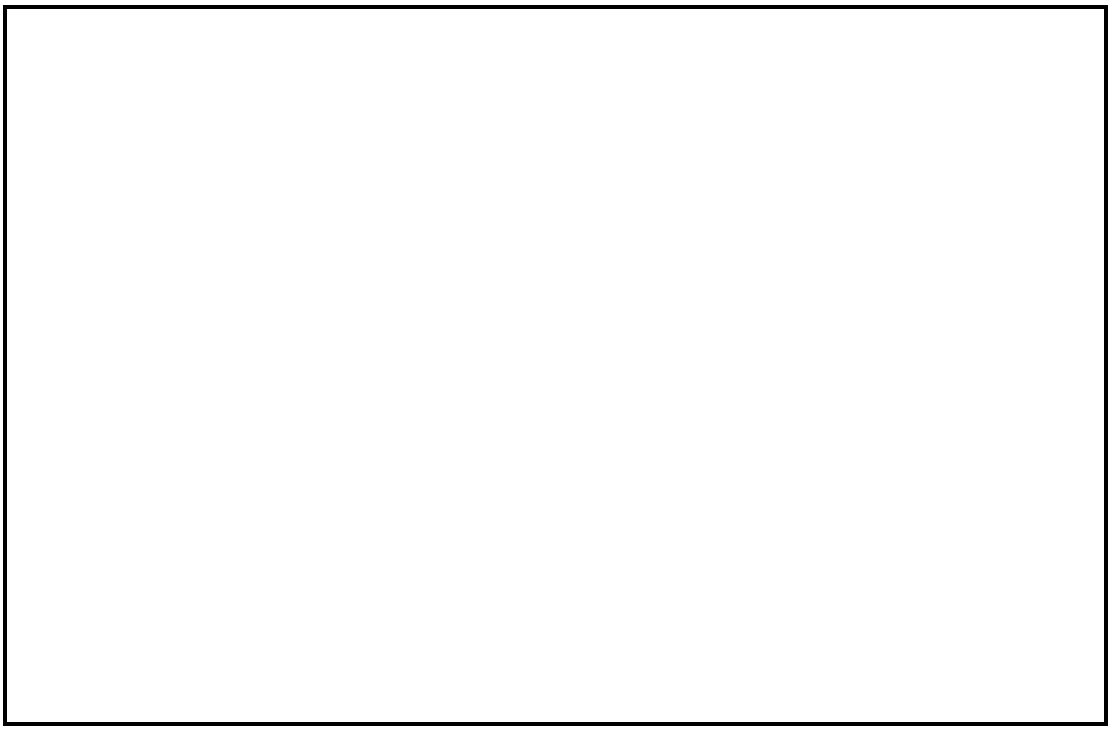


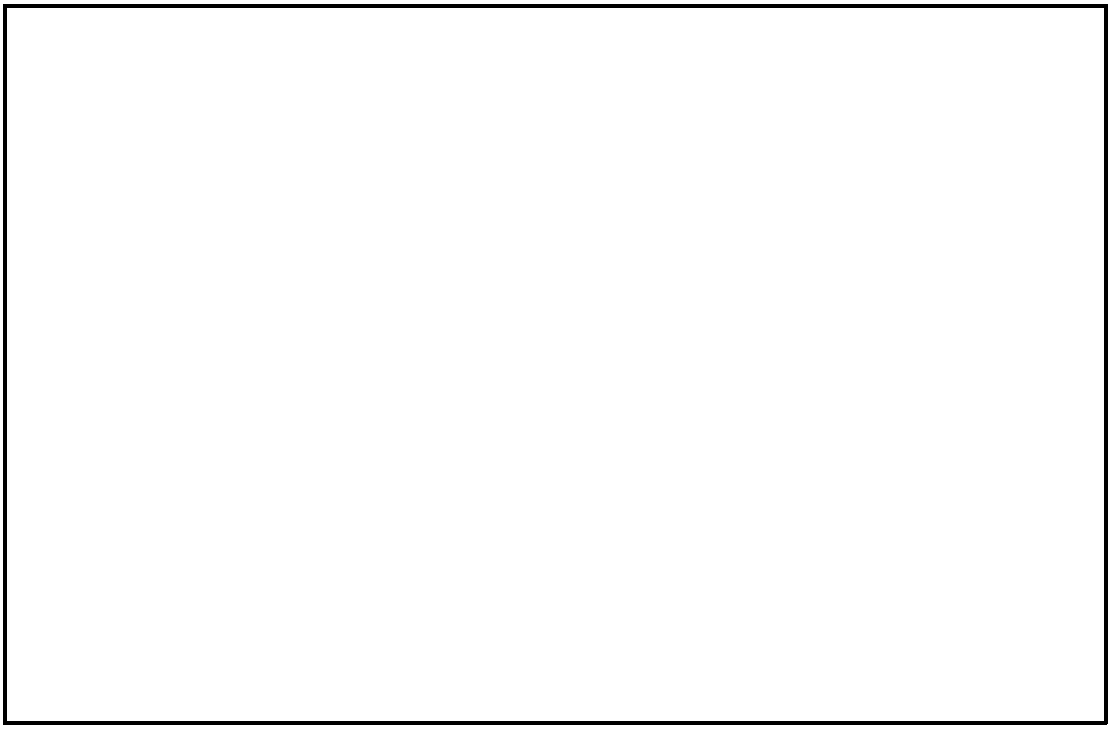


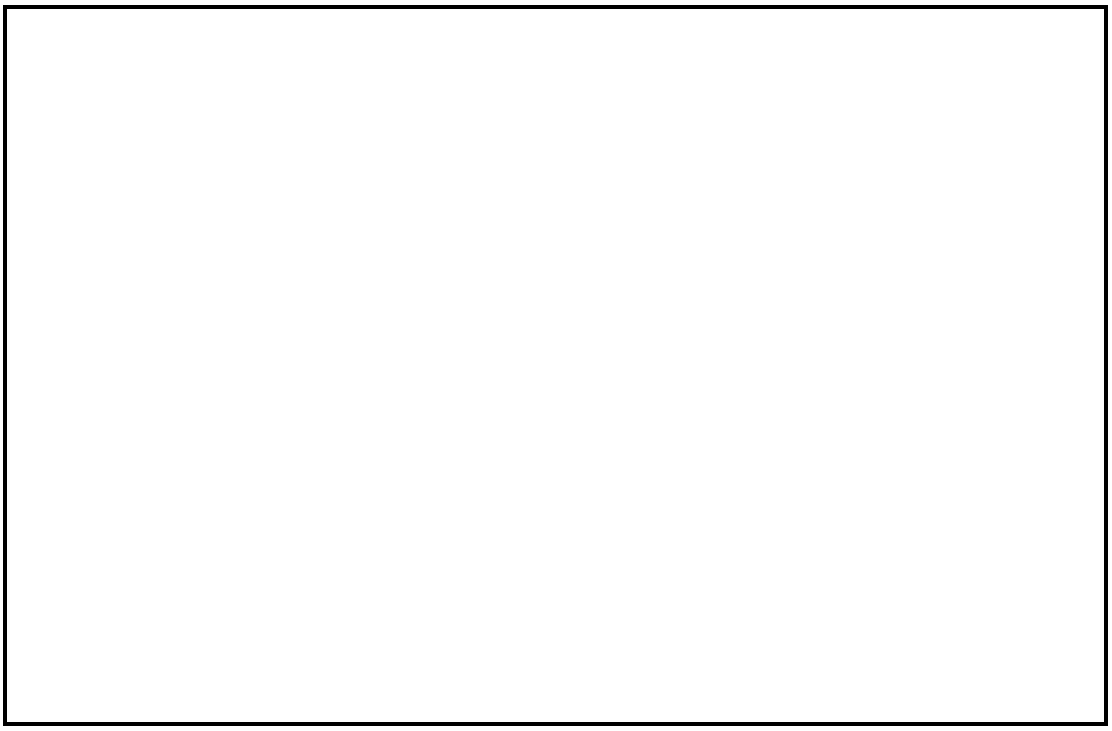


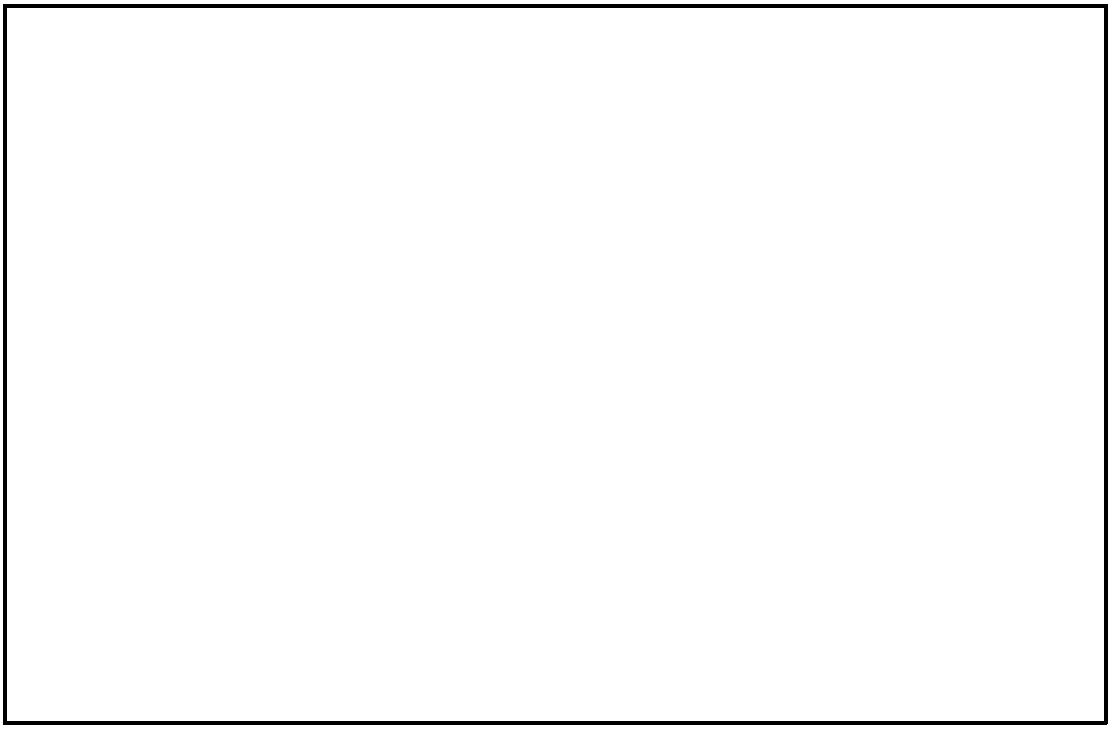


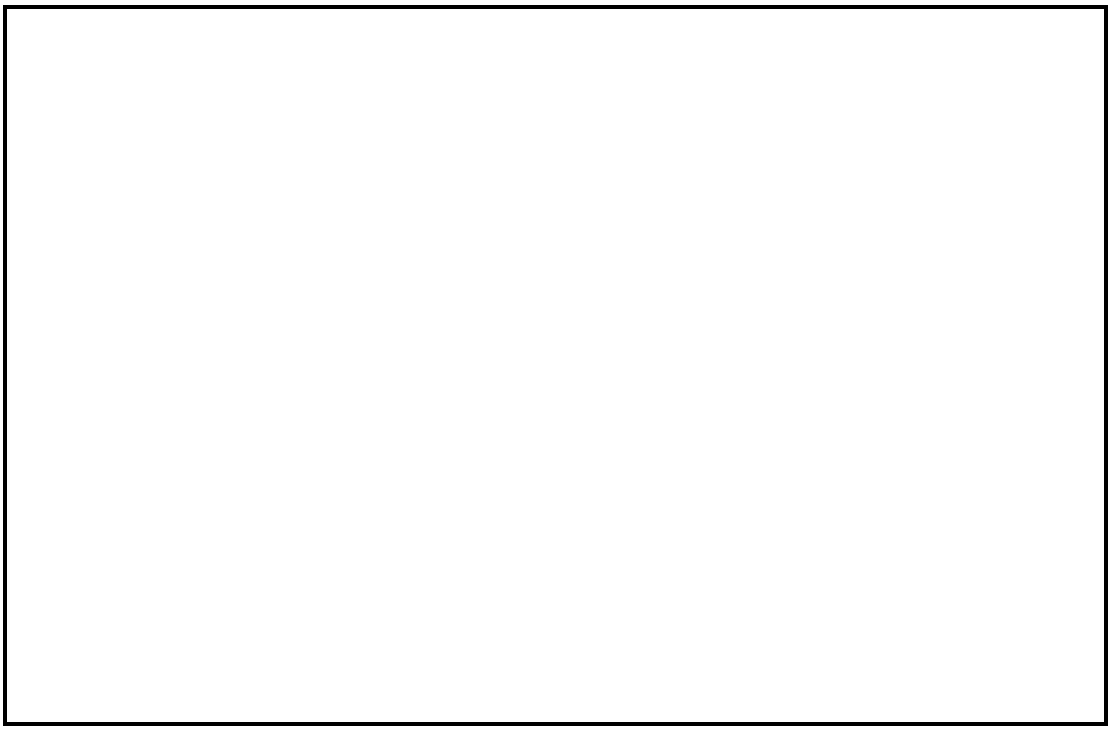


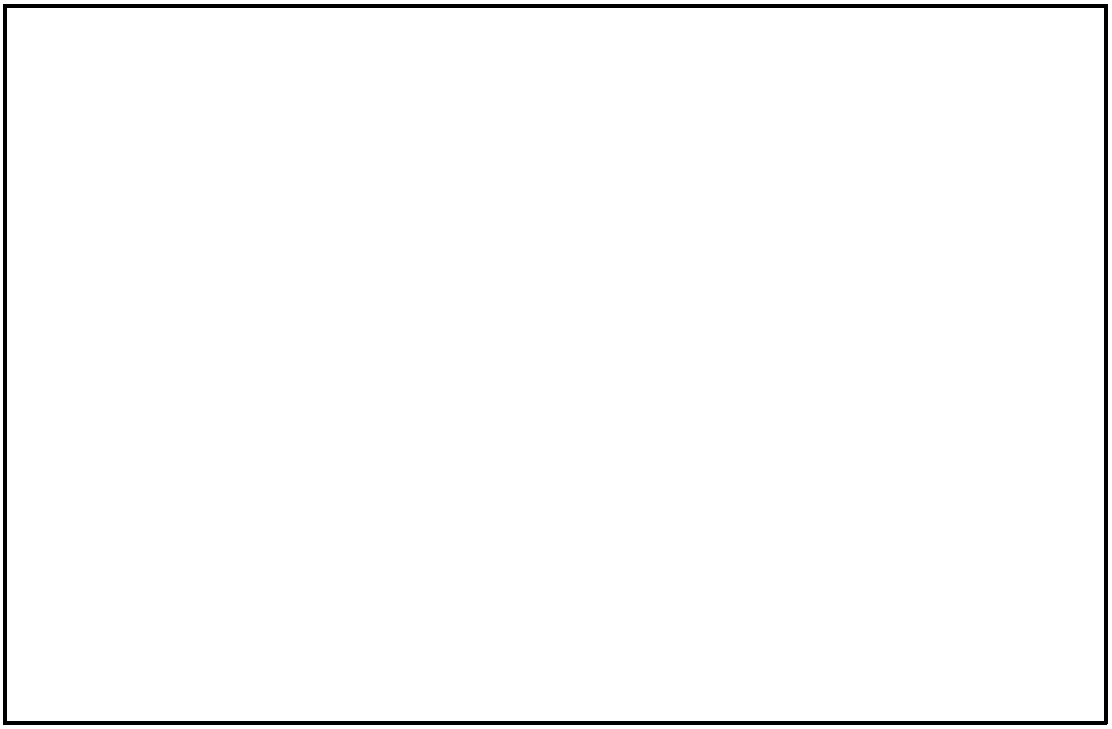












APPENDIX B
ASSUMPTIONS AND FORMULAS USED IN SIMULATIONS

All figures for first year simulations are in October 1, 1992 prices. Figures for subsequent years are monthly and are in real terms, that is, adjusted for inflation.

The space schedule used to calculate ***MSR*** was originally proposed by officials from the City of Moscow.[11] It is based on the number of household members, as follows:

Number of Persons	Square Meters of Total Space
1 - 2	35
3	45
4 - 5	60
6 +	70

Moscow

Maintenance fees for the base year of this analysis, October 1992, were calculated according to a formula obtained from the Engineering Department of the City of Moscow. Fees for maintenance were based on a space allowance according to family size using the following formula:

Maintenance = (12 m^2 of living space x number of persons + 6 m^2) x 16.5 kopecks/m^2 + (extra space in m^2 x 48.5 kopecks/m^2)

where extra space is the total living space minus the space allowance of 12 m^2 + 6 m^2 for the family. These figures were compared to reported rents for each household. The lesser of the two was used as the household's current maintenance fees in the base year as families often report making payments for several months at one time, therefore, overestimating monthly rent. Additionally, the lower figure could represent adjustments and reductions made according to a family's social situation, i.e., veteran, or number of children. However, these estimate of current maintenance fees are only used in calculating the revenue increases under each program. In the simulations of the housing allowance program, maintenance fees computed according to the formula were used in order to simulate the elimination of current adjustments before implementing the housing allowances. In cases with missing data on expenditure for maintenance, computed maintenance fees were used for both.

This space schedule differs slightly from that of the decree on rent increases and housing allowances passed by the Moscow City Government in January 1993.

Fees for water and gas are fixed per person and central heating payments are based on rent and living space. For cases with missing data on expenditures for communal services, formulas and fixed fees obtained from the City of Moscow were used to calculate monthly household expenses for gas, water and central heating. The following formulas and fees were used: central heating fees are equal to 40 percent of rent plus living floor space times 25 kopecks; cold water and sewage fees are 2.1 rubles per person; hot water fees are 3 rubles per person; gas fees are 2.1 rubles per person.

Novosibirsk

In order to compare the results of the simulations for the three cities, data for Novosibirsk were converted from fourth quarter figures to monthly figures at the end of the third quarter. Inflation was 27 percent in October, 21 percent in November and 23 percent in December and wage growth was assumed to be 80 percent of inflation. Income was deflated by the compounded monthly inflation over the period. Fees for maintenance and communal services were assumed to be constant over the fourth quarter.

In Novosibirsk, fees for maintenance are based on living space, priced at 16.5 kopeks for the first 12 m^2 per person, 33 for the next 6 m^2 per person, and 49.5 for living space over 18 m^2 per person. The same methodology for comparing reported and computed maintenance fees employed for the Moscow data was used for Novosibirsk. The lesser of the two was used as the household's current fees, but the computed fees were used in the simulations. In cases with missing data on expenditure for maintenance, computed maintenance fees were used for both.

Fees for communal services are fixed rates per person in the household. Gas fees are 2.1 rubles per person; cold water and sewage fees are 12.6 rubles per person; and hot water fees are 5.4 rubles per square meter. For cases with missing data these formulas were used to estimate household expenditure on services.

Ufa

Data for Ufa, collected at the end of the third quarter, were also converted from quarterly to monthly figures. Inflation was 9 percent in July, 6.2 percent in August and 16.9 percent in December and wage growth was assumed to be 80 percent of inflation. Income were deflated by the compounded monthly inflation over the period. Fees for maintenance and communal services were assumed to be constant over the third quarter.

The same method of determining fees for maintenance and communal services used for Moscow and Novosibirsk data was employed for Ufa. Fees for maintenance in Ufa are 13.5 kopeks per square meter of living space within the norm of 12 m^2 per person and 40.5 kopeks per square meter above the norm. Communal services fees are based on the following fixed charges per person: gas fees are 2.1 rubles/person; cold water and sewage fees are 7.35 rubles/person; and hot water fees are 12.12 rubles/person.

APPENDIX C
WEIGHTING THE SAMPLE

Because selection for participation in the National Income and Expenditure Survey is not random, the data were both ratio adjusted and weighted in order to represent the actual number of households and the income distribution in the cities. As a result, simulations provide population estimates of cost and participation.

First the data were adjusted according to the distribution of households in two aggregated branches of the economy, industry and others, and households of pensioners. This adjustment enables us to simulate the income structure of the city and thus, better estimate the costs of the program. For example, in Novosibirsk, there are 9 percent pensioners, 31 percent households working in industry, and 60 percent in other branches. Cases in the sample were assigned a value so that the distribution in the sample represents the actual distribution.

For example, there were 10 pensioner households of the 576 households in the data for Novosibirsk, or only 2 percent. Thus, each pensioner household is assigned a value of 5 to correct the distribution. The 294 households working in industry, 51 percent of the sample, are assigned a lower value, .61, to compensate for their overrepresentation in the sample. The following table summarized the process of ratio adjusting by sector for Novosibirsk.

Table C.1
Adjustments by Sector For Novosibirsk

Sector	Percent	Formula with sample size of 576
pensioners	9	number in sample: 10 10*weight/576 = .09 weight = 5.06
industry	31	number in sample: 294 294*weight/576 = .31 weight = .61
other	60	number in sample: 272 272*weight/576 = .60 weight = 1.27

Households were then weighted to inflate the sample to the total number of households in each city living in each type of housing, i.e., municipal, departmental, cooperative and individual housing. For example, in Novosibirsk, 46 percent of the housing stock is municipal units, 35 percent departmental, 8 percent cooperative, and 11 percent individual housing. The total number of dwelling units is 393,708. The total number of units of each housing type is determined and divided by the number of those in the

sample. The result is the weight assigned to each household living in that housing type. The weighted sample is an estimate of the population of households. The following table summarizes the calculation of weights according to the distribution of housing stock for Novosibirsk.

Table C.2
Weights For Novosibirsk

Housing Stock	Total	Formula with sample size of 576
municipal	181105.68	number in sample: 387 181105.68/387 = weight weight = 467.97
departmental	137797.8	number in sample: 114 137797.8/114 = weight weight = 1208.75
cooperative	31496.6	number in sample: 37 1496.6/37 = weight weight = 851.26
individual housing	43307.88	number in sample: 38 43307.88/38 = weight weight = 1139.68

APPENDIX D
TABLES OF RESULTS

The following tables present the effects of the six alternative strategies under the two scenarios of income growth as a percent of inflation for each of the three cities. Each year of the program is presented in a separate table.